ALASKA MEDICINE

Volume 25, Number 1
January/February/March 1983

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ALASKA MEDICINE

Official Journal of the Alaska State Medical Association

4107 Laurel, Anchorage, Alaska 99504

Volume 25 | January/February/March 1983 | Number 1

ALASKA MEDICINE is the quarterly journal of the Alaska State Medical Association; Alaska Medicine, 4107 Laurel, Anchorage, Alaska 99504. *ALASKA MEDICINE* is printed by Northern Printing, Co., Inc., 655 Warehouse Avenue, Anchorage, Alaska 99501.

About the cover: *Deer on Montague Island* by Leonard Ferucci, M.D.

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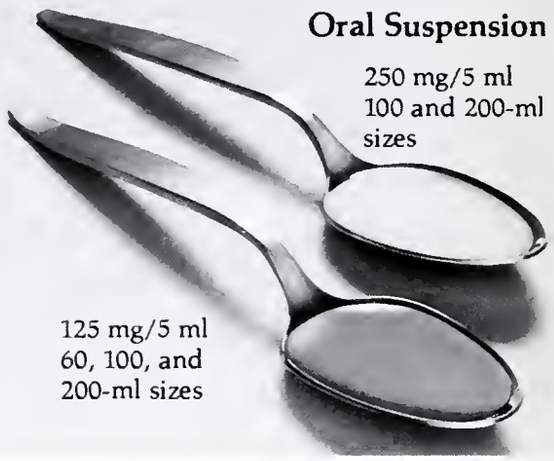

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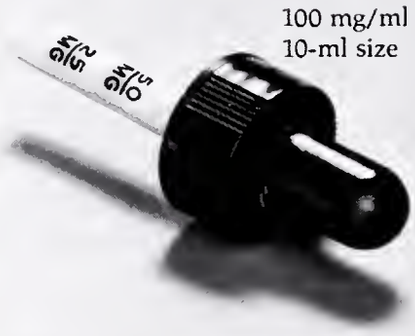

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BROWN/GRIZZLY BEAR MOUTH CULTURES IN ALASKA

Richard G. Parry, M.D.
Robert Ziemis, M.S.
Harry Reynolds, M.S.
Sterling Miller, M.S.

The Grizzly/Brown bear populations in Alaska are increasing to pre-statehood levels. This fact, combined with increased utilization of the wilderness for recreational activities suggests that increased bear versus human encounters will develop. Some of these encounters will result in bear attacks and injuries to humans, many of which may be quite severe.

Very little data exists on the bacterial flora of bear's mouths, and no previous data exists on oral bacteria of Alaska Grizzly/Brown bears in their natural habitat. Therefore, this study was undertaken to gain information concerning the bacterial content of these types of bears, to enable rational decisions to be made concerning the use of antibiotics in the treatment of significant bear bite injuries, and to decide if indeed antibiotics are indicated.

Material

Thirty-one Grizzly/Brown bears were studied in their natural habitat. The majority of these bears were studied while tranquilized during Alaska Department of Fish and Game tagging studies, and during relocation attempts. The specimens consisted of 17 males and 14 females. The bears were studied in the locations of the Western Brooks Range, Susitna Dam Project Area, Kodiak Island, and the McGrath area. The ages of the bears varied from six months to 13½ years old as determined by cementum age analysis of an extracted tooth. While several of the bears demonstrated healed fractures of the mandible and maxilla, none of the bears exhibited obvious intraoral abscesses or infections. All of the bears were considered to be healthy specimens in their natural habitat.

Method

Mouth cultures were taken in the field via swabs placed in culturettes and transported to the Bacteriology Section of the Fairbanks Memorial Hospital. The culturettes were kept refrigerated as much as possible. Time between culturing in the field and plating of the swabs varied between 24 hours and 7 days. Duplicate cultures plated within 48 hours and after 5 - 7 days did not reveal any major change in the type of flora per individual bear. The swabs were plated on blood agar and plated on CNA for selective enhancement of gram positive organisms and EMB for selective enhancement of gram negative organisms. Gram negative rods were identified using an Enterotube method at Fairbanks Memorial Hospital using approved techniques for human bacteriological indentification. Because the method of identification of human bacteria varies from methods used by zoologists for animal bacterial identification, the gram negative rods were further analyzed using API strips at the Wildlife Center in Madison, Wisconsin.

Results

All of the bears had organisms growing in their mouths. Of the 31 bears analyzed, 21 had mixed populations of gram negative and gram positive organisms. Nine of the 31 bears had gram negative organisms only, and only one animal had pure gram positive organisms.

Gram positive organisms identified

21 of the 31 bears studied had either Staph epidermis, Enterococcus, Group A streptococcus or a combination of both in their orpharynx. A single animal had Beta hemolytic streptococcus.

Gram negative organisms identified

The gram negative organisms will be presented in their order of most frequent occurrence:

Enterobacteriaceae - this group was most strongly represented. 31 of 31 Grizzly/Brown bears studied had representatives of this group. E coli was found in 8 bears. Yersinia in 7 bears. Enterobacter in 5. Citrobacter in 4. Serratia, Klebsiella and Hafnia in 2 each. Proteus in 1.

Diphtheroids - 18 of the 31 bears contained Diphtheroids.

Unidentifiable Gram Negative Rods - 8 of the 31 bears had biochemically undefined or nonviable gram negative rods.

Pseudomonas - 3 of the 31 bears had Pseudomonas.

Acinetobacter - 2 of the 31 bear cultures grew out Acinetobacter.

Organisms Not Found

Salmonella, Erwinia, Edwardsiella

TABLE I

GRAM POSITIVE ORGANISMS

TYPE	FREQUENCY (Number of bears)
Staphylococcus epidermidis	14/31
A - Streptococcus	5/31
Enterococcus	5/31
B - Streptococcus	1/31
Staphylococcus aureus	1/31
"Other Streptococcus" (non-beta hemolytic, optochin resistant, bile esculin negative, no growth in 6.5% NaCl)	13/31

TABLE II

GRAM NEGATIVE ORGANISMS

TYPE	FREQUENCY (Number of bears)
Enterobacteriaceae	
E Coli	8/20
Yersinia	7/20
Enterobacter	5/20
Citrobacter	4/20
Serratia	2/20
Klebsiella	2/20
Hafnia	2/20
Proteus	1/20
	31/31
Diphtheroids	18/31
Unidentified G(-) rods	8/31
Pseudomonas	3/31
Acinetobacter	2/31

Summary

All of the Grizzly/Brown bears studied throughout a wide geographical location of Alaska were found to have bacteriological organisms growing within their mouths. The majority of the bears studied had mixed gram negative and gram positive organisms. Pure cultures of a single flora were rare, and pure populations of gram positive organisms were also rare. The majority of gram positive organisms found were Staph epidermidis, Enterococcus, Group A streptococcus, or combinations of the above. One animal was found to have Beta hemolytic streptococcus and one had coagulase positive Staphyloccus aureus. The occurence of those two oranisms in bears unassociated with human refuse appears unusual. Gram negative organisms were frequently found. The group most strongly represented was Enterobacteriaceae with its component members of E coli, Yersinia, Enterobacter, Citrobacter, Serratia, Klebsiella, Hafnia and Proteus. Of noted interest is the fact that Yersinia enterocolitica, which has been implicated in human gastrointestinal disease, was found in 7 bears. Yersinia enterocolitica appears to be found in poorly cooked fish, but the bears who had the Yersinia enterocolitica were located in the Western Brooks Range, remote from any major body of water which would carry salmon.

Of further noted interest, anaerobic organisms were also found in the cultures and a second study is under way to identify these anaerobic organisms.

Conclusions

Mouth cultures were taken in the field on 31 Grizzly/Brown bear, widely distributed, in Alaska. All of these bears contained organisms within their mouths. The majority of the animals had mixed populations of gram positive and gram negative organisms. The most common gram positive organisms identified were Staph epidermitis, enterococcus, and Group A streptococcus. The most common gram negative organisms included enterobacteriaceae, diphtheroids, and pseudomonas.

Based on these findings, we would recommend broad spectrum antibiotic coverage for both gram negative and gram positive organisms as prophylactic treatment for humans suffering severe soft tissue injuries from bear attacks.

Acknowledgements

We wish to thank the Alaska Department of Fish and Game, the Fairbanks Memorial Hospital Department of Pathology, and the Wildlife Center in Madison, Wisconsin for their generous cooperation and assistance.

REFLECTIONS ON A "LAST FRONTIER" EXPERIENCE:

ALASKA IN THE 1960's

Robert E. Steele, M.D.

Introduction

The following largely anecdotal remarks were prepared enroute by air, between two midwestern cities, for presentation to a group of senior Family Medicine residents in the destination community.

My primary purpose in this presentation was to pique the interest of those residents whose practice plans were still undecided in the challenges of medical care delivery in the isolated and semi-isolated communities of this country. At the same time I hoped to point out some of the irritations and pitfalls of practicing in such areas. Individual conversations with certain of those residents following the address, suggested some small measure of success in accomplishing these purposes. It is hoped that similar interests may be generated from among those who read the article.

In the fall of 1967 after seven-plus years of exciting general practice, but ever-mounting concern at being unable to get a much-needed new hospital project off the ground, I left Crystal Fall, population 2200, in Michigan's Upper Peninsula and headed north to Alaska. My agreement with my clinic partners and my home community: that I was, in fact, on a one-year leave of absence, at the end of which I would return home, hopefully to the construction of a new hospital. (As it evolved, the new hospital had **not** been started by the end of one year, so I stayed **two**.) My plan was to work for a four-man group in Alaska's southeastern Panhandle, which I had visited earlier in the year; that group consisting of a general practitioner, a general surgeon, a pediatrician and an obstetrician. As I labored westward and northward through Canada in my camper pick-up, that seemingly-compatible group developed, of a sudden, an inexplicable level of internal strife, and in a matter of days, quickly met its demise. The obstetrician donned his ten-gallon hat and went back to Texas. The pediatrician flew to Seattle for the weekend and expired in his hotel room. The general practitioner packed his gear and headed for the Kenai (Alaska) Peninsula. The surgeon took offices in the local hospital and continued to do his thing. Then ol' Bob arrived on the scene. I remember it was a beautiful sunny October day, one could see with ease, the mountain which rose precipitously behind the town, and for a guy with my interests, it looked like the ultimate. (The rain started the next day and I don't remember seeing the mountain again until the day I left there six months later.) Needless to say the news about the clinic was a bit discouraging. To my great surprise (and delight) there was amongst my mail a note from a young general practitioner and former member of the now-defunct clinic, who had left that group, with another (older) general practitioner-surgeon two years earlier to establish a two-man practice down the street. The older and more patriarchal partner had died out on the tundra while hunting caribou and his younger partner was hurting for help. I set up housekeeping in my camper on the edge of town and started seeing patients the next day. It was a beautiful little office adjacent to a shopping center with a secretary-receptionist, an R.N. and a full-time lab and x-ray tech. Interestingly my new associate did all manner of things (and very well); including his own fluoroscopy, GI studies, etc. right in the office. Since he was surgically-inclined and I medically-inclined, we complimented one another extremely well and seemed to have gotten it all together within a very few weeks. We had some amazing patients; for example, the twenty year old Go-Go dancer I admitted with an obviously "hot" appendix turned out at surgery to have a ruptured rectus abdominis with an abdominal wall hematoma in the right lower quadrant. The next question? You guessed it! Was this indeed a compensable on-the-job injury?

The answer - a resounding **yes**! In fact they seemed so delighted at the Workmen's Comp office they could hardly wait to pay! Ultimately I left the Panhandle in the main because not ever having lived in the Pacific Northwest, I simply couldn't stand the eternal rain. But, I left there with a mixed bag of impressions about it's health-care delivery system, the most interesting perhaps, being that, despite the availability of outstanding secondary and tertiary care by well-trained specialists and subspecialists, a few hundred miles to the north in Anchorage, ninety-nine-plus percent of the Panhandle's medical referrals were still, in the 1960s, going the longer route to Seattle.

From the Panhandle I moved north to the rugged Kenai Peninsula where a progressive little general practice group had expressed an interest in me from across the miles. I had visited this group during the late winter and had inspected their impressive new thirty-bed hospital which sat 75% completed in a vacant field behind the Clinic. And though all expected it would be completed when I joined them two months later, it was **not**, nor was it finished another three months hence when I moved into Anchorage, nor was it finished another **fifteen** months hence when I left Alaska to return home. The project had run out of money you see, had exhausted all sources of federal, state and local funding and that empty building sat there in the middle of a field wanting to be a hospital, but not knowing how to come alive.

Once I had joined this (second) group, it was decided I should take Katy, my new nurse, and open a branch clinic some twelve miles away in the next town. Kay and I set up in an abandoned clinic building on the edge of town, originally built and briefly occupied by a physician who had left, allegedly, as rapidly as he had come. We were adjacent to a highland swamp from which the moose occasionally emerged and looked in the window. We weren't very busy at first, which was fortunate because it was a really wet spring, and I spent much of the time pulling patients' cars out of the mud with my truck winch. I slept in the clinic at night to be near the telephone and about two months into the experience, I got a frantic call from the base clinic in the next town informing me that the State Police were bringing in seven critically injured patients whose Volkswagen had collided with a moose at high speed. To further complicate the picture one of the two base-physicians was in Seattle. And to make the picture complete there were two women in active labor admitted to the Clinic. (I found out later that they were both primips, one a frank breech and the other a set of twins.) I threw on some clothes, roared over to the base clinic, and found a situation difficult to believe. Our medical student preceptee from Washington was struggling with a diagnostic traige of the seven accident victims with the help of some State Policemen. The remaining base-physician and his LPN were in the OB room struggling with a long and difficult delivery of twins. The other lady in labor was becoming more active. One accident victim was DOA. The medical student led me to a little girl who went on to die in my arms as I began to examine her. The third triage patient was comatose from a head injury and we quickly got him and another seriously-injured patient aboard an evac-helicopter headed for Anchorage. From that point on the levels of injury became progressively less and the hope for survival more. I had not, however, completed the triage when the second lady decided to deliver. The LPN had left the doctor to his struggles long enough to open an OB pack and get the lady up in stirrups, then brushed past me as I entered the room, and was gone. As I introduced myself, crowning occurred, and it was then that I discovered the frank breech. As we sweated together through the early part of the delivery, I began thinking, "My God, what if the head hangs up! I've no idea where the Pipers are! I don't even know if we **have** Pipers!" It was a night where the old adage "Don't worry, things will get worse!" really applied. The head **did** hang up. The mother was obviously distraught, and making not a little noise. I was by now shouting for the nurse to come and find those critically-important forceps. At some point where I was sure we must already have a dead baby the nurse burst in, quickly found the Pipers, and was as quickly gone, as her doctor was in a comparable degree of difficulty with the primip twins. Have you ever tried to apply Pipers to an aftercoming head without someone to hold the baby up out of the way? Somehow I got the forceps on and the baby delivered. He was limp and cyanotic with an APGAR of 3 at best, but with a frantic resuscitative effort and a lot of prayer the baby came around quickly. I could not believe how well he was doing at five minutes or so. At the other end of the clinic, the second twin finally delivered. We finished programming our remaining accident victims (who ultimately did well) and by sunrise, which was pretty early at that time of year, we were even able to grab a little shuteye. One of the great traumas of my medical career was over, and I can remember among a confusion of thoughts feeling good about seemingly have "handled it," medically and emotionally. But this was over-shadowed by thoughts of frustration and expectations unfulfilled. This nightmare I felt did not **have** to happen. Oh, the auto accident maybe, or some other disaster-type happening, but even so, it should have taken place in that hospital out there where at least more help would have been available. As for the obstetrical problems, neither of those young mothers had even considered flying in to Anchorage (easily accessible via air-taxi) for high-risk delivery, but simply sought out the clinic when they were well into their labors. Not only did one come close to losing her baby, but two (three) simultaneous high risk deliveries tied up 50-100% of the physician manpower available while people were dying in other areas of the clinic.

A few days later our visiting radiologist took me aside and asked me how I was enjoying my strictly outpatient practice on the Kenai. He indicated that his multispecialty group in Anchorage (to whom by default I was sending all of my interesting and challenging

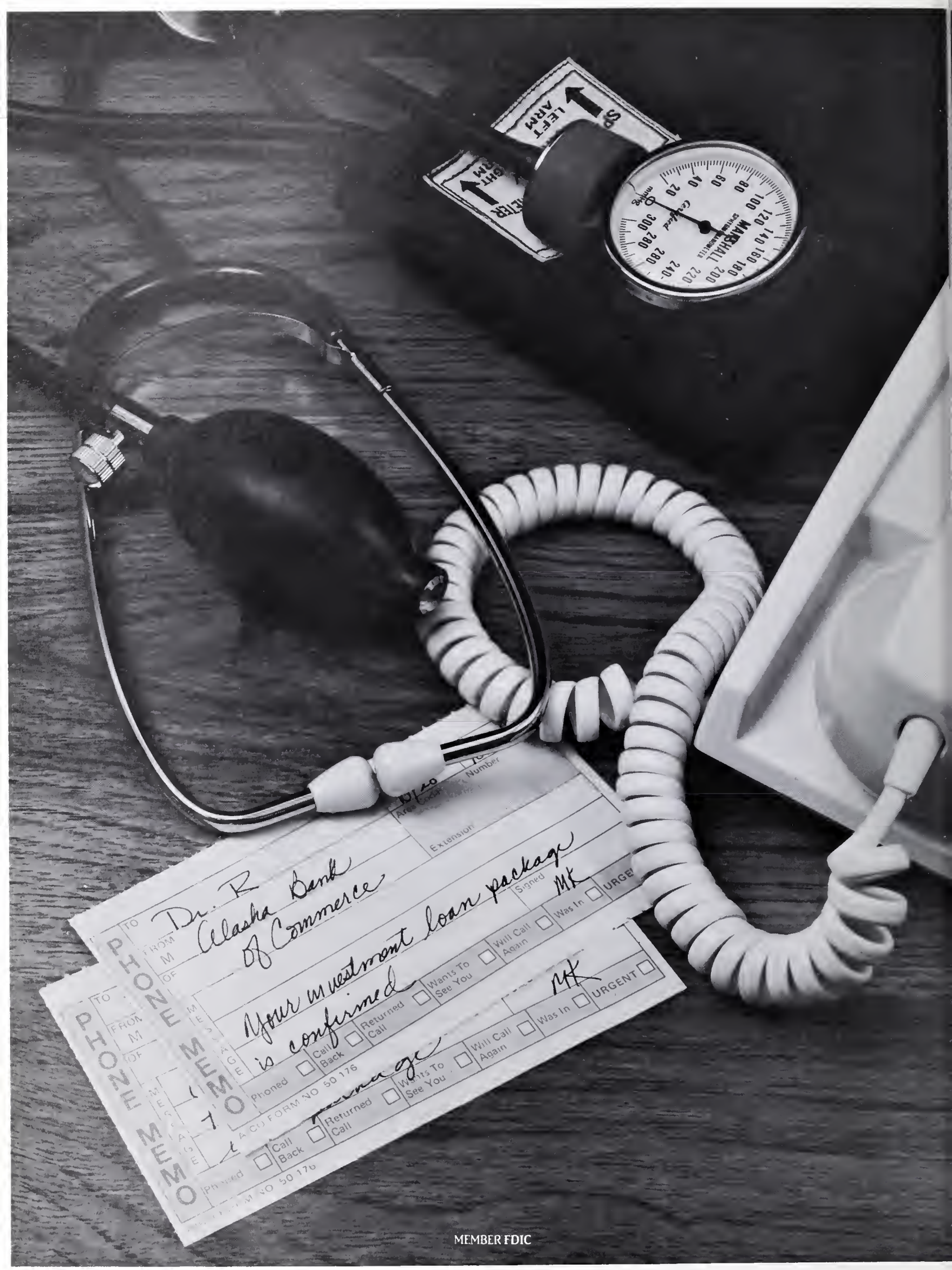
inpatients) was, by now familiar with my work and wished me to join them. At the end of three months on the Kenai then, I made my final move to Anchorage where I was to spend the last fifteen months of my Alaska sojourn with one of the larger multispecialty groups in the city.

The Anchorage group consisted of four general practitioners, two internists, a general surgeon, a chest surgeon, an obstetrician, an orthopod, a pathologist, and a radiologist. They had their own fifty-bed acute-care hospital and the calibre of care was as good as anything I had seen "stateside". Tragically, by the end of my first six months with the group both of our fine internists were dead. One of these gentlemen was a founding member of the group and a well-known figure in Alaskan medicine. One other generalist and myself were the most internal-medicine-oriented docs remaining, and until our new internist arrived, we spent much of our time doing the internal medicine and the coronary care including supervision of their four-bed CCU, the first I had ever worked in. I read a lot, I worried a lot, I hounded the internists in town, and learned so much so fast it was like internship all over again. The weekend hunting and fishing trips saved me -- for 48 or 72 hours I would all but forget I was a physician and when Monday rolled around again, I found I could get back in the saddle with relative ease. To free up some of my weekends for hunting and fishing I did a lot of night coverage in the E.R. during the week. This was a constant source of intriguing admissions for whom I could then direct the inpatient care and followup. For example, a middle-aged native Alaskan gentleman weighing 275 pounds, an unknown diabetic, was brought to the E.R. in profound ketoacidotic coma. After a stormy first few days his diabetes came slowly under control, and after a couple of weeks he was able to go home on 100-plus units of insulin/day. He was a delightful patient but not one we really expected to do well with his diabetic program including the 100 pound weight loss we told him would be necessary over the next year. He was asked to return weekly for awhile, but we didn't expect him to comply, in fact, wondered if we would ever see him again. In one week he was back, down five pounds and doing great. We dropped his insulin dosage, crossed our fingers, and waited. He was back in another week, down another 3-4 lb and still doing great. We dropped his insulin dosage more. Over the next six months, this gentleman followed his diet and exercise program to the letter, never missed an appointment and never failed to come in weighing less. He was gradually weaned from insulin, then weaned from oral agents. Seven months after his admission in coma he stood in my office weighing 174 pounds, free of glycosuria or hyperglycemia, off all meds for the prior two weeks and looking and feeling fine. (In twenty-two years of treating diabetes, this great good fortune has never repeated itself for me, before or since . . .)

In Anchorage, I was beginning to appreciate a problem. I had grown to love Alaska - her breathtaking beauty, her terrain, her "native" Alaskans (be they Eskimo, Indian, or White). But the Alaska I loved was "out there" - along the coast, on the inland lakes and streams, in the mountains of the interior, and in the tiny settlements dotting the landscape here and there. To me, an avowed small-community person, Anchorage, in 1968, was just another medium-size grimy city exciting in its own ways but not nearly so exciting as the rest of the state. Yet, to practice the full range of outpatient-inpatient medicine to which I had become so accustomed during the years immediately following training, it was beginning to look like "I must needs be in Anchorage." The anachronism for me, became an impasse, one I have oftentimes pondered in the years since returning from that great land. I expect that had I gone there right out of training, I might well have been satisfied to live and work in the peripheral Alaska I loved, "doing my thing" for an interesting and needy people. An impressive number of fine Alaskan physicians (some alluded to in this paper) have done just this via both private practice and Public Health modes. And had I gone out there with a compatible and similarly goal-oriented colleague, perhaps we should both still be there making our medical education contribution by precepting an occasional venturesome medical student from WAMI or some other network . . .

For those of us who look at, think about, and sometimes help design medical-care systems, it is perhaps obvious that significant segments of the most underserved populations in those systems tend to accrue from the urban "inner fringes" and the rural "outer fringes" of society. Many of these "outer fringe" areas hide a sparse cadre of mini-"Albert Schweitzers," if you will, who devote many years and occasional professional lifetimes to the provision of good and oftentimes extraordinary health care; these are the professionals who constitute the "glue" that holds the existing system together, and tend to protect it from the inevitable transients and occasional misfits who will continue, from time to time, to invade its sanctity.

In the sub-set of primary medical care for such outer-fringe areas, perhaps the greatest hope for impacting favorably upon the system lies in the area's ability to attract young well-trained Family Physicians and other primary care specialists (preferably in start-up groups of two or more) immediately as they move into practice from out of their residency training.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THE STATUS OF SUBSTANCE USE AND ABUSE IN ALASKA: 1982

Theodore A. Mala, M.D., M.P.H.

Alcoholic Beverages in Alaska

In terms of consumption of absolute alcohol in gallons, the latest information according to trends in per capita sales of alcohol beverages estimates that the population consumed approximately 4.42 gallons of absolute alcohol per person per year during 1979. This figure has fluctuated with the drop in labor requirements for the building of the trans-Alaska pipeline and shows a marked decrease from the pipeline year of 1976 when it reached a high of 4.74 gallons of absolute alcohol per person. On a national basis, beer is the leading class among alcoholic beverages in per capita sales. In Alaska the leading beverage class is distilled spirits. Nationally, Alaska's per capita sales figure is ranked 4th in nation behind Nevada, the District of Columbia and New Hampshire, but it is first when out of state sales are taken into account.

Dividing the state into districts, we find per capita sales are highest in the Southeast region, followed by the Anchorage area, the Fairbanks area and finally the Barrow, Nome and Kotzebue areas. It is interesting to note a number of villages both Eskimo and Indian, have moved towards dry village options. This has been done in the major Eskimo community of Barrow and is currently pending passage in Kotzebue. A study of the dry village option has been recently approved by the legislature and will be undertaken in the coming year by the University of Alaska, Anchorage, Center for Alcohol and Addiction Studies.

Alaska's age requirement for the buying and consuming of alcoholic beverages is 19 years of age or older. Advertising of liquor is permitted. Meals do not have to be served with alcoholic beverages or on premises where alcoholic beverages are sold. The sale of alcoholic beverages in containers of any available size is allowed. Recent changes in Alaska's Statutes permit local communities to reduce or limit availability of beverage alcohol.

Alaska has a high estimate of approximately 17,810 problem drinkers, who are defined as individuals drinking alcohol to an extent where an alcohol related disability is manifested. It has been estimated that 24% of the total adult problem drinker population is female and the remaining 76% is male. In 1978 Alaska had 112 motor vehicle traffic fatality accidents. Of all fatality accidents, 52.1% were alcohol related or suspected; 20.6% of all motor vehicle accidents involving injury were also alcohol related. The largest percentage of individuals involved in alcohol-related motor vehicle accidents were in the 20-29 year old age group (47.2%), followed by the 30-39 year old age group (20.9%). The legal blood alcohol limit is 0.10%. In fiscal year 1979 studies on highway accident by the Alaska Department of Safety indicated that the average blood alcohol concentration of the person involved in an alcohol-related accident was 0.17%. It should be noted by comparison that the legal limit of blood alcohol concentration in Scandinavia is 0.05%.

During 1978 there was a total of 17,202 arrests for alcohol related offences involving males and 3,607 involving females. Of these arrests, 3,376 were Caucasian, 1,158 were Alaskan Natives, 109 were Black individuals, and "all other" were 1,340. The Caucasian group represented 56.4% and Alaskan Native 19.4% of total arrests.

In terms of alcohol related mortality during 1977, 409 deaths were attributed to alcohol related accidents. Alcoholism resulted in 31 actual deaths due to cirrhosis of the liver, making it number ten in the causes in

Associate Professor, University of Alaska Anchorage, Center for Alcohol and Addiction Studies, 3211 Providence Drive, Anchorage, Alaska 99504. Presented July 20, 1982 at World Assembly of First Nations, Regina, Saskatchewan, Canada.

the state. Of these direct alcohol related deaths, 38.7% (12) were of the Caucasian race, 16.1% (5) were Eskimo, 3.2% (1) Aleut, and 22.6% (7) were Alaska Indians. American Indians comprised the other 12.9% (4), with 6.5% (2) of Black ethnicity.

Alcohol also contributed not only to deaths in the area of motor vehicle related accidents, but also to suicides, homicides and all types of accidents and other acute and chronic diseases including cardiovascular, gastrointestinal disease and cancer. Approximately fifty percent of all fire fatalities have been related to the use of alcohol.

Although people are continually warned through the efforts of public health and prevention programs that alcohol should not be mixed with drugs, we continue to observe this pattern every day. Looking at the statistics of drug related mortality in Alaska for the years 1968-1977, we find 21.8% of the total deaths (26) that occurred involved alcohol and drugs taken together. The Center for Alcohol and Addiction Studies of the University of Alaska is currently doing a statewide survey on "Drug Use and Abuse in Alaska," and we hope to have updated information on exactly what type of drugs are available in the state, and to gain some indication as to their frequency of use. This study is currently being conducted by Dr. Bernard Segal, Director of the Center, Dr. Dani Bowman and myself, and will include profiles of not only Anchorage, Fairbanks and Juneau, but also Barrow, Nome, Kotzebue and Bethel. We hope to complete this study in June of 1983.

Looking at the combination of alcohol with other substances it was found that 55.8% were Caucasian, 26.9% were American and Alaskan Indians, and the remaining 19.2% were Alaska Eskimo and Aleuts. The main drugs combined with alcohol at the time of this study were barbituates, opiates, minor tranqualizers, darvon, and the antituberculous antibiotic, isoniazid.

There are a number of treatment facilities in our state for alcohol abuse. These include privately run chemical dependency units, regional alcohol programs, community mental health centers, and detoxification and community outreach programs. The U.S. Public Health Service and Alaska Native Area Health Service Hospital also provides emergency services.

For a one year period ending 1977, there were 969 drug arrests which represented a 3% increase over the previous year (944 arrests in 1975-6). After the pipeline days which represented 1975 total arrest record of 1,556, a figure like 969 seems quite low. Most of the arrests were related to marijuana and its possession. It should be clarified that the Alaska Supreme Court's "legalization" of marijuana was for possession of small amounts by adults in places where their right to privacy is protected, i.e. not in public places. The use and possession of marijuana has not been legalized in any sense in the following areas: (1) Use in public; (2) Possession of more than 4 ounces; (3) Possession of any amount while operating a motor vehicle; and (4) Possession or use of any amount, public or privately by juveniles. Arrests for marijuana occur mostly among young people. This current trend is not only for the possession of marijuana but also cocaine. The pattern of cocaine use and possession has been increasing since 1977. The preliminary indicators seem to point out that cocaine is concentrated in the larger cities and restricted to a more affluent group. Other preliminary indicators show that it is beginning to reach the rural areas but is not as widespread or as popular as alcohol and marijuana. In arrests for marijuana, the ratio of male to female is approximately 6 to 1. In cocaine related arrests, males represented 88% in 1977 (136) while females represented the other 12% (18).

It is interesting to note that 82% of all drug related deaths were with drugs that were prescribed legally for individuals. This occurs expecially with individuals 29 years of age and younger and especially in the white population. Hallucinogens accounted for 2.4% of all treatment admissions in 1979. While phencyclidine (PCP) use has been reported to be on the increase among young people in the state it has not been documented. There have been no deaths due to or involving hallucinogens during the past 10 years. The use of inhalants seems to be quite prevalent among young people in certain areas of the state, especially in the rural areas. Deaths have been linked to this when alcohol and other drugs are also used. Hard statistical data are not available at this time to document the phenonena.

The Future: Where Do We Go From Here?

The best drug is no drug. So we have to begin to think about the philosophy of prevention. It is obvious that the healthier an individual is, the more productive and stable his or her life will be. It is not necessary to point out the unnecessary loss of life that has occurred through the use of abuse of alcohol and other drugs. It is not important whether the substance is legal or not, but that it is introduced into the body and influences the individual's behavior and productivity is what most disturbs and hurts our society.

Prevention should be one of our major goals. Primary prevention includes reducing the distribution of alcohol and other drugs among our population. Secondary prevention includes early intervention activities before the problem can get too big. Tertiary prevention includes treatment and rehabilitation services focused on smaller numbers of people who are already experiencing the negative concequences of alcohol and/or other drug related problems. To that end the State of Alaska, Department of Health and Social Services, has established an office of Alcoholism and Drug Abuse which is coordinating our statewide effort in the area. Through this office major funding takes place as well as the coordination of the various agencies within Alaska. They have put forward the prevention and action plan and monitor closely all the activities in our state concerning state funded projects.

The state has also taken efforts to curb the incidence of drunken drivers and has passed legis-

lation that makes it a mandatory three-day jail sentence for anyone with over the legal alcohol blood limit of 0.10% who is found operating a motor vehicle. Alaska Regional Corporations, especially the health and social service agencies, have taken over a number of alcohol treatment and prevention agencies in their areas. The Center for Alcohol and Addiction Studies of the University is well known for its training efforts. The Center's Annual School on Addiction Studies, held in Anchorage each year, address many of the state's educational/planning needs. The School brings together a number of experts in the field. Over 400 participants from all the rural and urban areas took part in this year's annual school. It included a special training session for counsellors and people in the field of alcohol and drug abuse.

Films and posters are being translated into different languages to help educate people about the inherent problems of alcohol and drug addiction. It is especially heartening to see these films being made locally for childern in our traditional Alaska Native languages as well as in English. Other agencies such as the Alaska Council on Alcoholism concentrates on media and public awareness efforts; the Alaska Native Commission on alcoholism and Drug Abuse concentrates on rural use; the Rural Alaska Community Action Program concentrates on rural community action workshops; Alaska Legal Services works in the area of research and legal action development; and the Anchorage Community College's Adult Literacy Lab develops educational materials which are relevant to Native people. Various municipal health departments have special prevention and treatment programs that are funded both at state and local levels. The state is also involved in the control and licensing of institutions that desire to sell alcoholic beverages.

Summary

There is no doubt that a problem exists and efforts are being made to resolve it. We in Alaska are still far away form reaching the ideal state of complete control over certain legal and illegal substances which are ruining a number of lives and careers daily.

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Erratum -- September/October 1982, page 89:

Admissions to the Alaska Psychiatric Institute (N= 2,972) and state-wide suicides (N=184) did not yield statistically significant seasonal variations ($p > 0.20$).

It's no accident.

The fact that our area leads the nation in holding down health care costs is no accident. It's the direct result of voluntary health planning.

Physicians, hospital and clinic administrators and managers, governmental representatives and the public at large have worked together to produce a model health care system in Washington and Alaska. Even health care providers not directly involved in health planning have a say.

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We're proud of the success of voluntary health care planning in this area. We're pleased to be part of the process.

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AORTODUODENAL FISTULA:

CASE REPORT OF MASSIVE GASTROINTESTINAL BLEED

Wm. H. Bowers, M.D.

Aortoduodenal fistula was first described by Sir Astley Cooper in 1892 as a cause of massive gastrointestinal hemorrhage (10). Before the advent of prosthetic grafts the most common cause was atherosclerotic abdominal aortic aneurysms which ruptured into the third portion of the duodenum. Other causes seen less commonly were mycotic or syphilitic aneurysms, tuberculous periaortic nodes, or carinoma of the pancreas eroding into the duodenum and aorta. Presently aortoduodenal fistulas as a cause of gastrointestinal hemorrhage are relatively rare occuring in 0.4% to 2.4% or upper gastrointestinal bleeds (5).

Delay in diagnosis has led to the high mortality of 70% (5). Several modes are available for rapid diagnosis: arteriography or upper gastrointestinal barium studies which have a low yield; or the more recent utilization of endoscopy. These, coupled with a high degree of suspicion, are the most accurate present day methods.

The following case reports one of the pitfalls in diagnosis.

Case Report

A 69 year old white male was brought to the emergency room with a history of upper gastrointestinal bleeding of approximately one quart of coffee-ground material. There had been one previous emesis without blood. The patient had a history of epigastric post cibal abdominal pain and fullness unrelieved by antacids for two months; and had been evaluated at another hospital by upper gastrointestinal series and arteriography which were normal. He had a history of aortoiliac bypass graft three years prior to admission. He denied any salicylate ingestion or other ulcerogenic medications. He rarely partook of ethanol. The patient suffered from angina pectoris controlled by Nitroglycerin.

Past medical history included a myocardial infarction, cholecystectomy, strangulated omentum, diverticular disease of the colon and severe peripheral vascular disease of lower ectremities.

Physical examination revealed a blood pressure of 100/60 mm Hg, pluse of 140, respirations of 16 and temperature 96°F. The patient was noted to be pale with blood pressure dropping progressively. Fundi were not visualized. The neck was supple with brisk carotid pulses and no audible bruits. There were decreased breath sounds and rales at the bases compatible with lung congestion. The precordium was unremarkable without gallop, rub or other adventitious sounds. The abdomen revealed hypoactive bowel sounds without tenderness or masses. No peripheral endema was noted but decreased pulses were appreciated in the right leg. Deep tendon reflexes appeared equal and active bilaterally.

An ECG showed sinus tachycardia with marked ST depression in the precordial leads. The hematocrit was 31% and the white cell count 24,000. There was 1+ glycosuria, postassium of 3.3 and sodium of 137.

Because of the patient's falling pressure and continued hemorrhage, several units of packed cells were transfused. An Ewald tube was inserted for gastric lavage and two liters of coffee-ground material with clots was aspirated. Emergency endoscopy revealed moderate amount of blood with a large clot fixed to the fundus. Some fresh blood oozing from beneath the clot hinted at either ulcer or Mallory-Weiss tear. Passing the scope into the duodenum disclosed a large amount of old blood. Visualization beyond the second portion was impossible.

The patient was transferred to the Intensive Care Unit. Bloody drainage through an NG tube and hypotension, persisting in spite of multiple transfusions, led to an operation.

In the stomach a Mallory-Weiss tear was oversewn with no apparent bleeding elsewhere. The third portion of the duodenum was not visualized directly. After return to the Intensive Care Unit massive hematemesis and hematochezia ensued requiring seven units of blood to maintain a palpable pressure of 60 mm Hg. The patient was rushed back to surgery and found to have an actively bleeding aortoduodenal fistula. An axillofemoral bypass graft and removal of the aneurysmal dilated dacron aortic prosthesis were accomplished. Prostaphlin, Cleocin, and Mandol were started parenterally.

Postoperatively the right leg was noted to be cool, pale and tense. Repeat ECG and isoenzymes were compatible with acute myocardial infarction. The patient began having difficulty with decreased urine output, myoglobinuria, increasing serum creatinine as well as fever. A Swan-Ganz catheter disclosed evevated pulmonary capillary wedge and pulmonary diastolic pressures. Prior to a cardiac arrest, from which resuscitation was unsuccessful, cultures from the resected graft and fistula grew out E. coli and Bacteroides fragilis.

An autopsy revealed diffuse severe atherosclerosis of coronary and peripheral vasculature, acute myocardial infarction, necrosis of the right leg, cardiomegaly and congested splanchnic viscera.

Discussion

It is difficult to diagnose fistula even with arteriography or barium studies. If there is more than one bleeding site, the issue becomes markedly clouded.

Several modes have been postulated for fistula formation (3). Some individuals believe infection must always occur and have used models showing fistula formation occurs in 33% of infected grafts. Others have stated that there is no statistical significance and the dog model cannot be extrapolated to human.

Basically there are two accepted modes of fistula formation. There may be erosion of the duodenal wall by an aortic aneurysm or by a synthetic graft, exposing aorta or graft to bacteria and enzymatic digestion leading to sebsequent perforation. A false aneurysm could develop secondary to suture fragmentation or degeneration of sutures and homografts. Not always is infection present initially but it usually develops (5). In approximately 4-6% of aortic grafts anastomotic aneurysms or false aneurysms develop.

The diagnostic setting is usually found in a male patient between 50 and 76 years of age presenting with hematemesis and/or melena. He may present with fever of unkown origin or his bleed may mimic that one sees from ulcer disease. The classic triad of pulsatile abdominal mass, pain without antacid relief, and massive intermittent bleeding should lead one directly to the diagnosis. Predisposing factors are the use of silk sutures that may lead to subsequent fragmentation, operation on emergency basis, and a questionable needle perforation during closing of posterior peritoneum (4).

Repair of aortoduodenal fistula is most often done by axillofemoral graft; high dose antibiotics are administered because of the high percentage of infected aneurysms. Overall mortality is 70% (1).

Because of difficulty in diagnosis with arteriography and barium studies, the following endoscopic findings are helpful: pulsatile structure in duodenal wall, arterial bleeding distal to ampulla, suture line in the third portion of duodenum, ulceration below ampulla, and bile strained object in bowel wall of graft patient (1).

Summary

Aortoduodenal fistula remains a relatively rare and often confusing cause of gastrointestinal bleeding that may be diagnosed accurately by endoscopy when proper diagnostic criteria are present.

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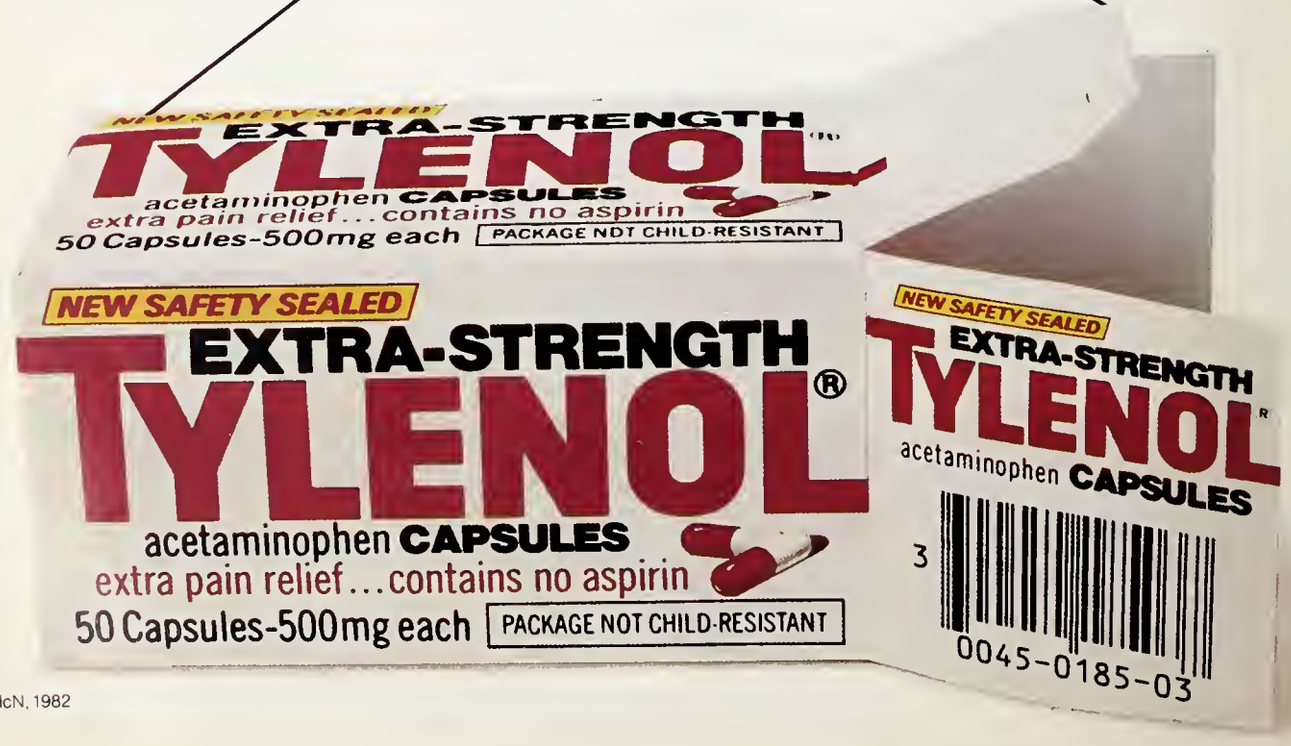

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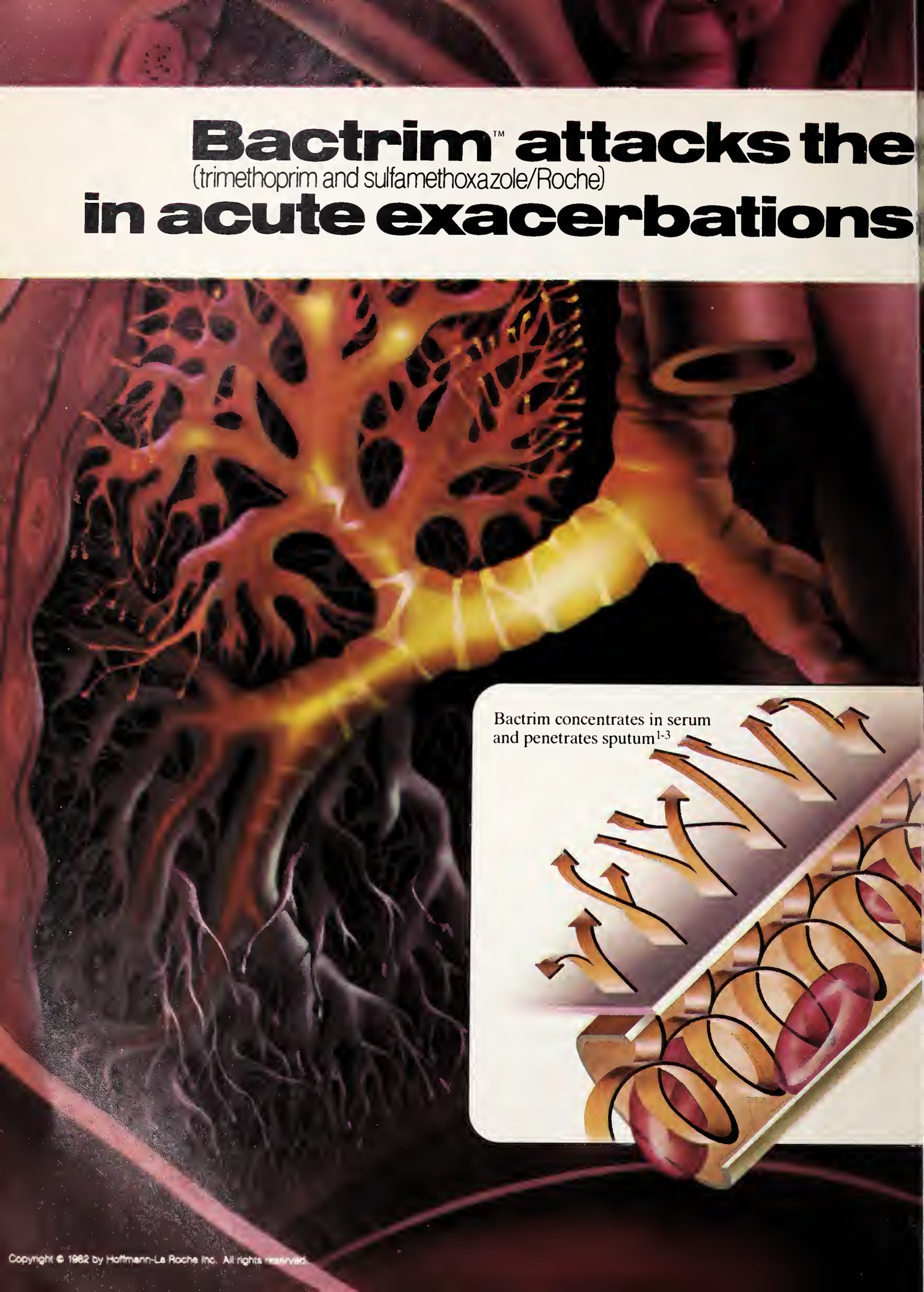

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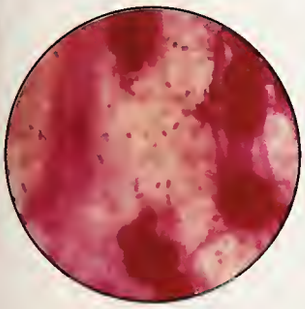
najor pathogens
of chronic bronchitis*

Bactrim clears sputum of susceptible bacteria

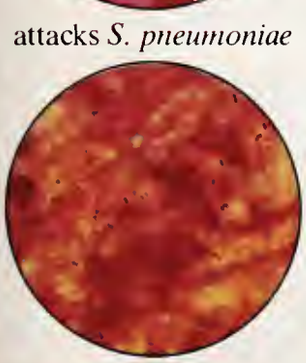
In sputum cultures from patients with acute exacerbations of chronic bronchitis, *H. influenzae* and *S. pneumoniae* are isolated more often than any other pathogens.[4,5] One study of transtracheal aspirates from 76 patients with acute exacerbations found that 80% of the isolates were of these two pathogens.[5]

Bactrim is effective *in vitro* against most strains of both *S. pneumoniae* and *H. influenzae*—even ampicillin-resistant strains. And in acute exacerbations of chronic bronchitis involving these two pathogens, sputum cultures taken seven days after a two-week course of therapy showed that Bactrim eradicated these bacteria in 91% (50 of 55) of the patients treated.[6]

tacks *H. influenzae*—even
ampicillin-resistant strains



attacks *S. pneumoniae*



Bactrim reduces coughing and sputum production

In three double-blind comparisons with ampicillin *q.i.d.*, Bactrim DS proved equally effective on all clinical parameters.[7-9] Bactrim reduced the frequency and severity of coughing, reduced the amount of sputum produced and cleared the sputum of purulence.

Bactrim has the added advantages of *b.i.d.* dosage convenience and a lower incidence of diarrhea than with ampicillin, and it is useful in patients allergic to penicillins.

Bactrim also proved more effective than tetracyclines in 10 clinical trials involving nearly 700 patients.[10] Overall clinical condition of the patients, changes in sputum purulence, reduction in sputum volume and microbiological clearance of pathogens—all improved more with Bactrim therapy than with tetracyclines. G.I. side effects occurred in only 7% of patients treated with Bactrim compared with 12% of tetracycline-treated patients. (See Adverse Reactions in summary of product information on next page.)

Bactrim is contraindicated in pregnancy at term and nursing mothers, infants under two months of age, documented megaloblastic anemia due to folate deficiency and hypersensitivity.

Bactrim DS. For acute exacerbations of chronic bronchitis in adults* when it offers an advantage over single-agent antibacterials.

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Economical b.i.d.

Bactrim™ DS

(160 mg trimethoprim and 800 mg sulfamethoxazole/Roche)

*Due to susceptible organisms. **Please see next page for summary of product information.**

Bactrim™

(trimethoprim and sulfamethoxazole/Roche)

Before prescribing, please consult complete product information, a summary of which follows:

Indications and Usage: For the treatment of urinary tract infections due to susceptible strains of the following organisms: *Escherichia coli, Klebsiella-Enterobacter, Proteus mirabilis, Proteus vulgaris, Proteus morganii.* It is recommended that initial episodes of uncomplicated urinary tract infections be treated with a single effective antibacterial agent rather than the combination. *Note.* The increasing frequency of resistant organisms limits the usefulness of all antibacterials, especially in these urinary tract infections.

For acute otitis media in children due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over other antimicrobials. To date, there are limited data on the safety of repeated use of Bactrim in children under two years of age. Bactrim is not indicated for prophylactic or prolonged administration in otitis media at any age.

For acute exacerbations of chronic bronchitis in adults due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over a single antimicrobial agent.

For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antibacterial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonitis.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age

Warnings: BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL PHARYNGITIS. Clinical studies show that patients with group A β-hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended, therapy should be discontinued if a significantly reduced count of any formed blood element is noted.

Precautions: *General:* Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function. Bactrim may prolong prothrombin time in those receiving warfarin, reassess coagulation time when administering Bactrim to these patients.

Pregnancy: Teratogenic Effects: Pregnancy Category C. Because trimethoprim and sulfamethoxazole may interfere with folic acid metabolism, use during pregnancy only if potential benefits justify the potential risk to the fetus.

Adverse Reactions: All major reactions to sulfonamides and trimethoprim are included, even if not reported with Bactrim. *Blood dyscrasias:* Agranulocytosis, aplastic anemia, megaloblastic anemia, thrombopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia. *Allergic reactions:* Erythema multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis. *Gastrointestinal reactions:* Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, diarrhea, pseudomembranous colitis and pancreatitis. *CNS reactions:* Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness. *Miscellaneous reactions:* Drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies.

Dosage: Not recommended for infants less than two months of age.

URINARY TRACT INFECTIONS AND SHIGELLOSIS IN ADULTS AND CHILDREN, AND ACUTE OTITIS MEDIA IN CHILDREN

Adults: Usual adult dosage for urinary tract infections—1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 10-14 days. Use identical daily dosage for 5 days for shigellosis.

Children. Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

For patients with renal impairment. Use recommended dosage regimen when creatinine clearance is above 30 ml/min. If creatinine clearance is between 15 and 30 ml/min, use one-half the usual regimen. Bactrim is not recommended if creatinine clearance is below 15 ml/min.

ACUTE EXACERBATIONS OF CHRONIC BRONCHITIS IN ADULTS:

Usual adult dosage: 1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 14 days

PNEUMOCYSTIS CARINII PNEUMONITIS:

Recommended dosage. 20 mg/kg trimethoprim and 100 mg/kg sulfamethoxazole per 24 hours in equal doses every 6 hours for 14 days. See complete product information for suggested children's dosage table.

Supplied: *Double Strength (DS) tablets,* each containing 160 mg trimethoprim and 800 mg sulfamethoxazole, bottles of 100; Tel-E-Dose® packages of 100; Prescription Paks of 20 and 28. *Tablets,* each containing 80 mg trimethoprim and 400 mg sulfamethoxazole—bottles of 100 and 500; Tel-E-Dose® packages of 100; Prescription Paks of 40. *Pediatric Suspension,* containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); cherry flavored—bottles of 100 ml and 16 oz (1 pint). *Suspension,* containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); fruit-licorice flavored—bottles of 16 oz (1 pint).

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PHYSICIAN SELF ASSESSMENT

True or False

1. Current concepts of intensive treatment of Type I diabetic patients suggests that:

   A. There is a reduced neonatal mortality in pregnant diabetic patients.
   B. Risks of both hypoglycemia and ketoacidosis are increased.
   C. Use of an insulin pump is more effective in lowering blood glucose levels than repeated insulin injections.
   D. Proliferative retinopathy and proteinuria are improved.

True or False

2. Current concepts relating to lower urinary tract infections in women indicate:

   A. Acute urethral syndrome may be secondary to chlamydia, T-strain mycoplasma, pathologic bacteria and viruses.
   B. Bacteruria always requires antibiotic therapy.
   C. Chronic bacteruria usually progresses to pyelonephritis and eventually, chronic renal failure.
   D. Short-term (1 to 5 days) antibiotic therapy is effective in the majority of women with cystitis.

Choose the most appropriate answer.

3. In the presence of acute myocardial infarction, which of the following portend early complications:

   A. One or more PVC's on a 12 lead ECG.
   B. 1 mm ST segment evelation.
   C. Evidence of congestive heart failure (S3, pulmonary rales).
   D. Persistent chest pain.

4. Nifedipine (Procardia) has which of the following effects on cardiac performance in patients with impaired left ventricular function:

   A. Left Ventricular preload reduction.
   B. Improved left ventricular ejection fraction.
   C. Increased arterial blood pressure.
   D. Reduced myocardial oxygen requirement.

5. Which of the following causes of hyponatramia may be found in cancer patients:

   A. SIADH (syndrome inappropriate antdiuretic hormone).
   B. Adrenal insufficiency.
   C. Replacement of gastrointestinal losses with "pure water".
   D. Pain.
   E. Drugs, e.g., (cyclophosphamide, barbiturates, tricyclic antidepressants).

6. Which of the following is/are complications of dimethylsulfoxide (DMSO) in man:

   A. Changes in the refractive index of the lens.
   B. Local erythema and pruritis.
   C. Hemoglobinemia
   D. Garlic-like taste and odor of breath.

7. In which of the following groups of individuals is Hepatitis-B vaccination cost-effective?

   A. Surgical residents.
   B. Children in daycare centers.
   C. Dialysis patients and staff.
   D. Homosexuals.
   E. Prison inmates.

8. Cerebral infarction in young adults (less than 40 years) may be secondary to which of the following causes:

   A. Mitral valve prolapse with cerebral embolus.
   B. Migraine.
   C. Nephrotic syndrome.
   D. Homocystinuria.
   E. All of the above.

9. Which of the following tests identify fluid from a pleural effusion as an exudate:

   A. RBC count greater than 100,000 per cubic mm.
   B. Pleural fluid/serum protein ratio greater than 0.5.
   C. Pleural fluid/LDH greater than 200 IU.
   D. Pleural fluid/serum LDH ratio greater than 0.6.
   E. Pleural fluid pH greater than 7.4.

10. Hyperventilation in an unconscious patient may be secondary to which of the following:

    A. Prolonged vomiting.
    B. Diabetic ketoacidosis.
    C. Salicylate intoxication.
    D. Hepatic failure.
    E. Ingestion of sedative drugs.

11. Fresh frozen plasma should be used to correct which of the following hemorrhagic disorders:

    A. Factor X deficiency.
    B. Excessive prolongation of prothrombin time by

Tail Cove ag
S rc ded In My tery

Coverages of $100,000 or less were thought to be adequate by many physicians only five or ten years ago. What will be adequate in the next decade at today's limits of $1 million plus? Nationally, physician verdicts have skyrocketed by 255% during the last five years alone. Trends also indicate that larger "medical malpractice" awards seem to result from suits brought long after an alleged event.

Times Change

Inflation shrinks dollar values. Consumer attitudes change. New legal doctrines are being forged. Just a few years ago who gave much thought to a claim for granting staff privileges, or a claim for an unwanted birth. And what about supplementary costs. In Alaska, prejudgment interest is added by the court to the verdict handed down by the jury. Lets face facts, juries evaluate damages on today's and not yesterday's dollar values. Yet, Alaska law provides for an annual rate of 10½% interest computed from the date of injury. Think what happens to your dollar obligations when a suit is brought five years after you treated a patient with the trial held three to four years later. Also unique to Alaska is a court procedure authorizing plaintiffs to collect their court costs That's generally another 10% on top of the verdict.

So what do we do when we purchase professiona liability to protect ourselves from "medical malpractice" claims. Many physicians given a choice woulc still choose traditional occurrence coverages. Its only human nature to hang on to traditional concepts The fixed price tag and a piece of paper with nc strings attached.

Pitfalls of Occurrence Insurance

But popular impressions are at odds with reality wher selecting professional liability insurance. Because the traditional occurrence coverage ties everything -coverage language and dollar protection to the alleged injury date, it may fall short in providing you with adequate protection for the late filed suit. Its a problem commonly known as the "long tail of medica malpractice."

Discovery policies in the form of claims-made coverages have remedied many shortcomings of occurrence policies as the coverage and premium rates are geared to the discovery date on which the claim surfaces and that is an essential difference in

eeping up with your needs and avoiding speculative ricing. Frankly, it makes good business sense to auge the market place on what is happening today nd not for the unknowns and uncertainties we may ice tomorrow.

n the horizon, we see discovery type coverages in any fields other than for the professions of medine, law and architecture. Discovery policies will ant protection for any claim regardless when the cident occurred. You will be able to change from ne insurance company to another and not worry out the late claim because the company holding ur policy at the time a claim is made will honor it.

oday's claims-made policies are very similar except at the event must have occurred following the date hen your first claims-made policy went into effect. therwise, with each renewal policy your coverages e updated and you can select the appropriate llar protection you need. This avoids planning head for the next decade.

laims made coverages have taken on a new rection since they were first introduced. Resistence ew from the lack of guaranteed future protection. In me cases protection was limited to a number of ears. With some you were not necessarily assured ntinued protection when you terminated your licy. In return, many physicians responded negively to claims-made because of uncertain condinal insurance pegged as ["tail coverage"]. Today, tail coverages"] are fairly uniform. Guaranteed otection with no strings attached. These coverages ant you continued protection from the moment you rminate your claims-made coverages. In many spects the ["tail coverage"] is an occurrence licy.

Tail Coverages Shrouded in Mystery

Tail coverages"] are very important to you. And not just for your continued protection. They play a very critical role in determining your overall insurance costs. Yet ["tail coverages"] are shrouded in mystery. And with good reason. Terms, costs and guarantees still differ from one insurance company to another. As the rates for these coverages are generally not published up front, the true cost of claims-made is often misunderstood.

With the exception of certain entitlements where premiums are waived for disability, death or retirement, ["tail coverage"] costs are basically nothing more than an updated revision of premium needed for each year you had a policy less the accumulation of yearly premiums paid.

This complicates rate comparisons when shopping for professional liability insurance. Some companies may "skew" their rates so as to have an attractive front end cost. Some may level off artifically low compared to what an occurrence policy would be charged. But in the end ["tail coverage"] costs tend to balance the scale for claims-made premiums. Generally speaking, the better the claims experience of the insurance company, the lower the cost of ["tail coverages"].

MICA began offering two types of claims-made several years ago. The conventional "pure" claims-made and the "modified" claims-made. So far, the "modified" form, which is priced to a near scale of occurrence coverages, has prepaid nearly all costs for ["tail coverages"].

What many do not know, and certainly not unique to MICA are ["Nose coverages"]. Instead of buying ["tail coverages"] from your insurance company, you can generally opt to purchase the appropriate MICA renewal rate as if you had MICA insurance all along. MICA would then be responsible for those claims which might be made against you for the time you had another claims-made policy.

Read your policy . . . . . Understand your cost.

MICA Medical Indemnity Corporation of Alaska
4441 BUSINESS PARK BLVD./BLDG. N
ANCHORAGE, ALASKA 99503
TELEPHONE: (907) 563-3414

warfarin.
C. Prolonged postoperative bleeding.
D. Factor VIII deficiency (Hemophilia A).

12. Which of the following are true of potassium cyanide poisoning?

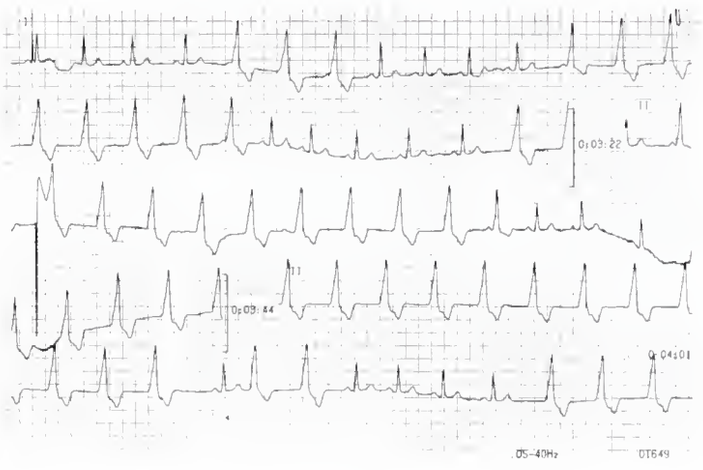
A. Rapid absorption from skin, mucosal surfaces and alveoli.
B. Cardiac dysrrhythmias.
C. Odor of "bitter almonds" or silver polish on breath.
D. Treatment with amyl or sodium nitrite.

ECG OF THE QUARTER

The rhythm strip illustrated here is a continuous recording made on a 28 year old lady who presented to the emergency room complaining of palpitations. She generally enjoyed freedom from illness, took no medication regularly and had a normal physical examination. Excepting the rhythm, her 12 lead ECG was normal. Her chest x-ray and serum postassium were normal.

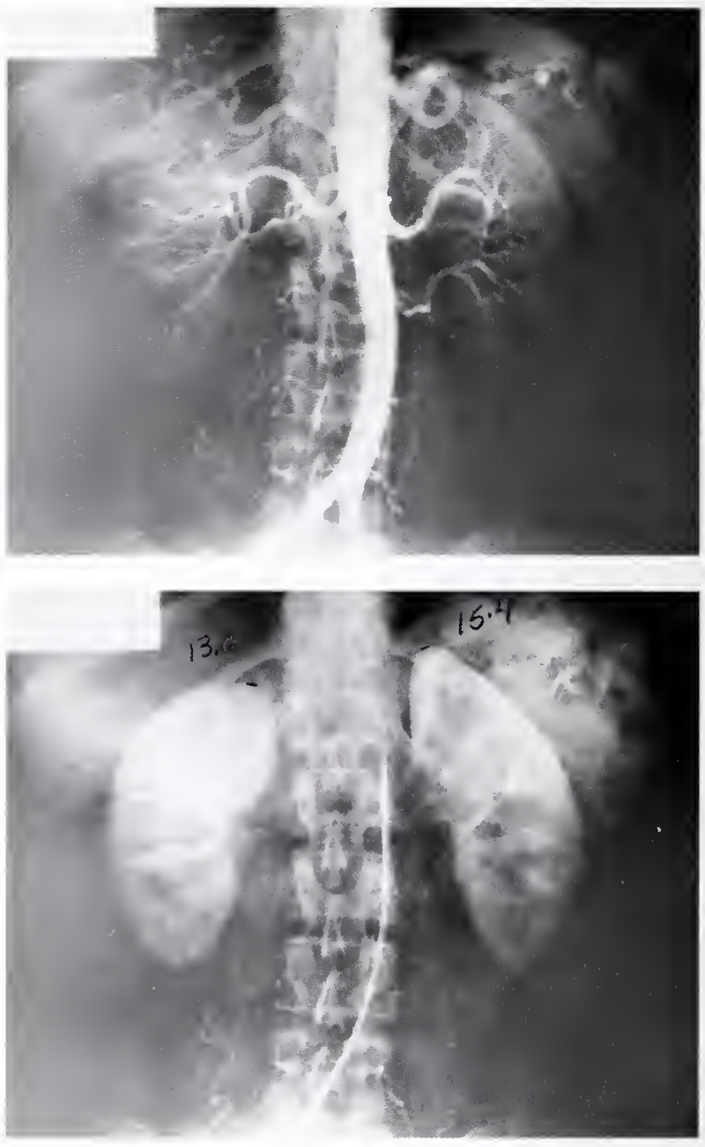
Questions

1. What is this rhythm?
2. What are its electrocardiographic charateristics?
3. What is the treatment?



X-RAY OF THE QUARTER

The x-ray is of a 53 year old female with recently diagnosed hypertension and an abdominal bruit. After reviewing the two films what are your two diagnosis.



FINDING ADDITIONAL PHYSICIANS FOR YOUR PRACTICE: The AMA and the NHSC

Join Together to Attract Physicians to Areas of Need

Despite recent increases in the number of practicing physicians, there are still areas of the country that are considered physician shortage areas because there are not enough physicians for the population or perhaps no physicians at all. In such areas -- which are often in rural communitites, but which can also be found in certain urban or metropolitan centers -- the population does not have adequate access to medical care and their medical needs are not being met.

At the same time, such a situation is a hardship for the physicians who are already practicing in such areas. They are often in practices that are overcrowded and understaffed and were there is no help in sight. Another too common problem, expecially in rural areas, concerns the retiring physician who has built up a thriving practice but who is unable to locate a physician willing to take it over. These physicians can't help but wonder at the scenario of too many physicians.
physicians.

If you are such a physician, you are probably looking for new ways to attract another physician to your community or practice. This is not always an easy task, especially in the more rural areas. but there are ways it can be done. Many of these underserved communities are not economically depressed and could very well support a private practitioner. Frequently, they just need assistance in reaching the right physician audience.

How then does one attract a new physician to such a community? There are several ways. A number of formal placement services exist that can be useful for recruiting physicians. The AMA Physician Placement Service, as well as those operated by many state medical associations and medical specialty societies, have proven very effective, although not always in the most physician-short areas of the country. In addition, many state governments have developed incentive programs for physicians to train and practice in their states. Some allow the community or practicing physician to "sponsor" a new physician through the state.

The HMSA-located communities benefit as well. Many of them have been unable to attract a physician and now have an opportunity to do so through the PRIVATE PRACTICE OPTION. The physician's scholarship obligation may lead him to consider a practice opportunity that he may have ignored under other circumstances. And once established in a suitable private practice, the physician will be more likely to stay in the community.

The American Medical Association supports the PRIVATE PRACTICE OPTION approach and has agreed to assist the National Health Service Corps by contacting communities and physician practices in Health Manpower Shortage Areas who are seeking additional physician manpower. The potential sits, if appropriate in terms of need and professional and community support, are then referred to the NHSC-obligated physicians for their consideration.

The AMA's Department of Health Care Resources is working with state and local medical associations, medical specialty societies and various community groups to identify, evaluate, and promote these practic opportunities. If you have or know of such a practice opprotunity and would like help to recruit a physician, the AMA will be happy to provide this assistance.

If you would like further information, please contact:

Phyllis Kopriva, Program Director
Department of Health Care Resources
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610
(312) 751-5111

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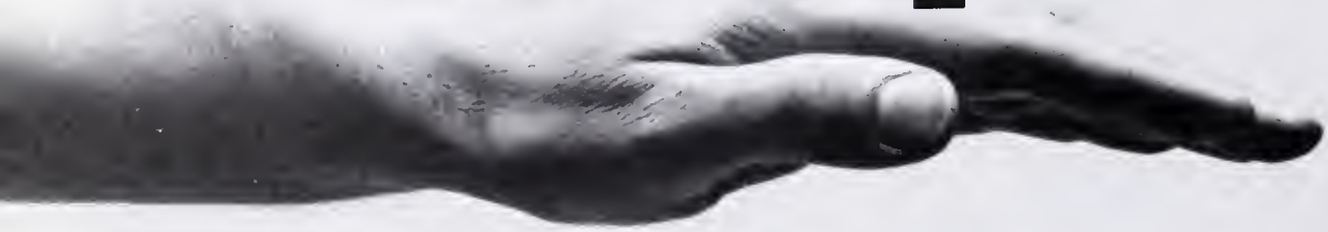

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Research Triangle Park
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AN OPEN LETTER TO ALL PHYSICIANS WITH PHYSICAL DISABILITY

For the past two years, we have been involved in compiling a resource directory for physicians with physical disability. The work is funded by a grant from the St. Paul-Ramsey Hospital Medical Education and Research Foundation. The purpose of the project is to list physicians with various physical disabilities who are willing to provide information and referral services to physicians who incur the same disability and need specific information. Existing rehabilitation programs are simply not equipped to deal with the situation.

The biggest problem we are encountering is poor participation. It is currently estimated that 4% of all physicians are not in active practice because of a physically disabiling condition, and that 25% of the physicians have the potential to be rehabilitated into the active practice of medicine. In real numbers this constitutes 1% of the licensed physicians in this country or 4,500 physicians. Our goal is to identify these physicians and encourage their participation. To date we have placed advertisements in over 100 major medical journals and have had response from less than 200 physicians. In retrospect, it appears this was due to the use of inappropriate terminology in the ads. Physical disability does not imply inability. Our use of the term "handicapped physician" was inappropriate since the majority of physically disabled physicians are not handicapped in their practice of medicine. We apologize for the inappropriate terminology and again ask that all physicians, active or inactive, with any type of physical disability contact Dr. Zondlo, St. Paul-Ramsey Hopsital Medical and Educational Research Foundation, 640 Jackson St., St. Paul, MN 55101. The directory will be completed in 6-8 months and at that time it will be sent to only those physicians who are listed therein. Upon receipt of your initial response, information forms will be mailed. All correspondence is confidential.

All physicians with physical disability, no matter how small, are encouraged to respond. Information from a doctor with even a minor disability may be of value to another doctor with multiple disabilities. The cornerstone of this project is your participation.

Thank you for your consideration.

Sincerely,
Frank C. Zondlo, M.D.
St. Paul-Ramsey Hospital Medical
Education and Research Foundation

EDITORIAL COMMENT

December 13, 1982

Dr. William H. Bowers, Editor
Alaska State Medical Association
4107 Laurel St., #1
Anchorage, Alaska 99504

Dear Editor:

This letter is to thank the physicians of Alaska for the A.H. Robins 1982 Community Service Award. Because of their support we now have a fine Radiation center, a great staff of 18 persons, and are treating 500 patients per year. We are most grateful for the support and trust placed in us and are fortunate to be in Alaska.

May God continue to bless all of you.

Sincerely,

Charles J. Sternhagen, M.D.

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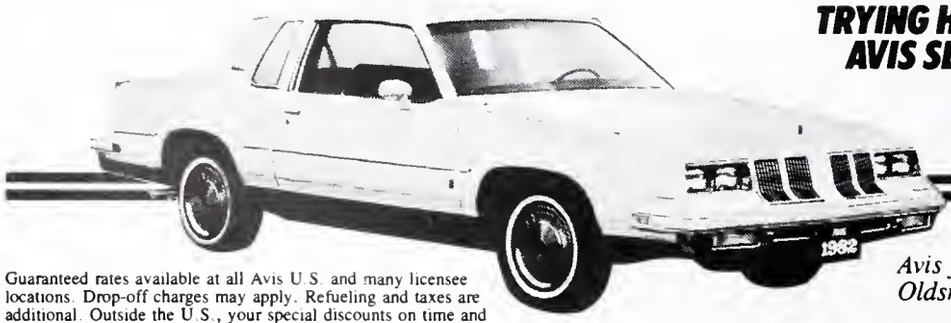

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STETHESCOOPS BY THE STETHESNOOPS

There is a renowned local physician who was listed recently in the marriage license column. Only problem - he already has one wife.

Congratulations to our famous politically active physician, Milo Fritz. Back in the legislature he is and we sorely need him there.

Which Cheechako doc has made his Anchorage debut, not in the field of medicine but with a splash in his chicken soup, gourmet soup of course.

Kudos to Mark Agnew for the high calibre seminars he's been putting on. His last one on GI disorders was superb. One question - who is signing up for Hepatitis B vaccine and why?

It's musical chairs on Lake Otis Parkway again as one building empties in part to fill the newest medical condominium close by.

We understand that one radiologist is no longer a member of the group. We also understand that it was his group.

A local "specialist" recently applied to a hospital but turned out to be an artful dodger.

This query may hit home - so if the shoe fits please do something about it.

"What's the difference between a doctor's spouse and garbage? The garbage gets taken out at least once a week."

Do ask Hedric Hanson if he really knows which father delivered the baby! We understand there were two in the delivery unit, at the same time.

POST GRADUATE COURSES

February 25,26,27	**11th Annual Lung Conference Chena Hot Springs 15CME credits For Information call 272-2332**
March 19,20	**Thermal Injury and the Immunoregulatory Response**
March 24-26	**Perinatal Symposium**
April 15,16	**Sports Medicine**
May 27,28	**Otitis Media in the Child**
June 20-22	**Critical Care Medicine Symposium**
August 11,12	**Summer Update Conference/ Obstetrics & Gynecology**
September 23-25	**Thermal Conference**
October 7,8	**Cardiology for Non-cardiologists**
November 25,26	**Diseases of the Eye and Skin**
December 9,10	**Computers and Microprocessors for the Physician's Office**

For information contact:

Judy Kyle
Education and Training Department
Providence Hospital, Pouch 6604
3200 Providence Drive
Anchorage, Alaska 99502
(907) 276-4511 ext. 1005

ALASKA MEDICINE, VOL. 24, 1982
SUBJECT INDEX

ALASKA MEDICINE, VOL. 24, 1982
AUTHOR INDEX

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Submit manuscripts in duplicate to the Editor:

William H. Bowers, M.D.
ALASKA STATE MEDICAL ASSOCIATION
4107 Laurel Street #1
Anchorage, Alaska 99504

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__ Arrange manuscript as follows: (1) Title page including title, author(s), and location by city and state, institution at which work was done, address to which reprint requests should be sent. Authors will be sent three complimentary copies of the Journal in which their work appears. (2) Abstract of less than 150 words using no abbreviations, footnotes and references. (3) Text including introduction, methods, results and discussion. (4) Acknowledgements. (5) References, tables, figure legends and figures.

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__ The figure title and caption material appear in the legend. Figure legends are typed double-spaced on sheets separate from the text. Figures are numbered in consecutive series in the order cited in the text. Sufficient information is included in the legends to interpret the figures without reference to the text.

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_____
Signature

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ANSWERS to PHYSICIAN SELF ASSESSMENT

1. A-True, B-True, C-False, D-False
2. A-True, B-Flase, C-False, D-True
3. A, C, D
4. A, B, D
5. A, B, C, D, E
6. B, C, D
7. A, C, D, E
8. E
9. B, C, D
10. B, C, D
11. A, B
12. A, B, C, D

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ANSWER TO ECG OF THE QUARTER

This long rhythm strip is an example of ventricular parasystole. Since the ectopic rate occasionally exceeds the sinus rate we could call it parasystolic ventricular tachycardia.

The electrocardiographic manifestations of ventricular parasystole are:

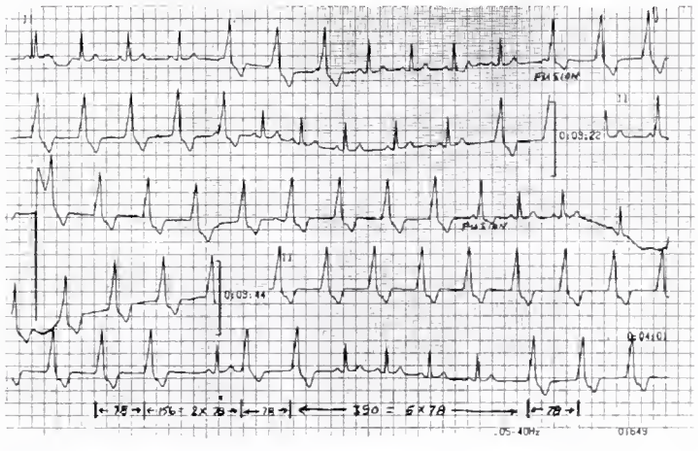
a.) Varying coupling interval between a sinus beat and the following ectopic beat. Look at the lowest tracing on the rhythm strip and note that the ectopic beat following the 4th complex comes earlier than the ectopic beat seen third from the right following its preceding sinus beat.

b.) The interectopic intervals are mathematically related to each other. If you again examine the lowest tracing you will see that the calculated interectopic interval is a whole number multiple of 78 hundredths of a second.

c.) Fusion beats may be seen toward the end of the 1st and 3rd lines on the continuous rhythm strip labeled "Fusion". These fusion beats are morphologically a cross between the ectopic and sinus complexes.

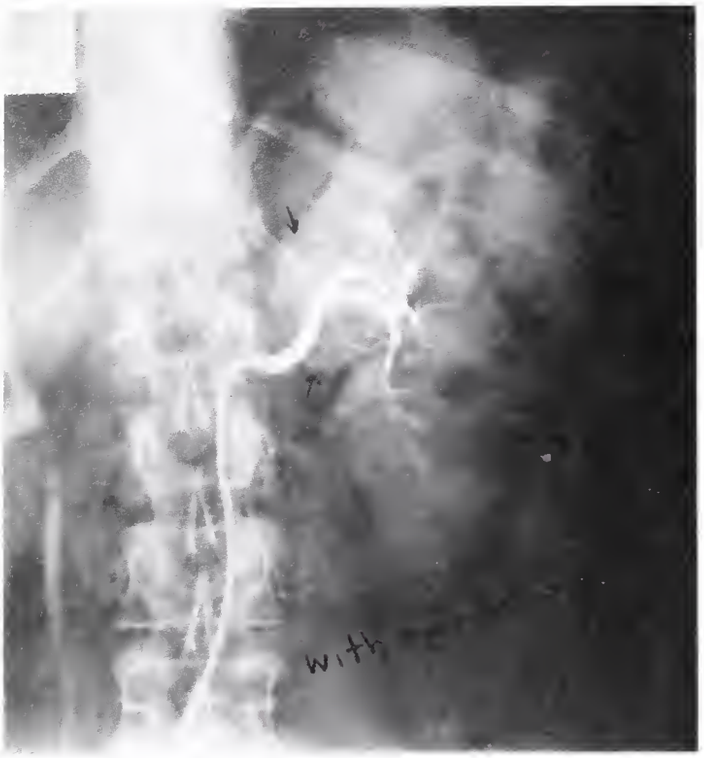
In an otherwise healthy individual the presence of ventricular parasystole can be considered harmless. No treatment is necessary.

The heart has many potential pacemakers, however; only the center with the highest automaticity is normally in control of the heart. Thus impulses from the fastest pacemaker, usually the SA node, reach the slower subsidiary pacemakers and discharge them before they have a chance to fire. If a subsidiary pacing site becomes insulated or protected from the impulses of the faster pacemakers it may discharge at its own inherent rate. Although the sinus impulses cannot penetrate into the ectopic focus, the ectopic impulses may leave the site and activate the heart. When these impulses occur at a time when the myocardium is repolarized, an ectopic beat is seen. Depending upon the temporal relationship between the firing of the ectopic focus and the sinus node you generate all of the electrocardiographic manifestations described above. Generally the ectopic firing rate is slower than the SA node, however; it may occasionally be faster, giving us parasystolic ventricular tachycardia.



ANSWER TO X-RAY OF THE QUARTER

Figure 3 shows fibromuscular hyperplasia of the renal arteries (medial fibroplasia type) with an incidental renal cell carcinoma.



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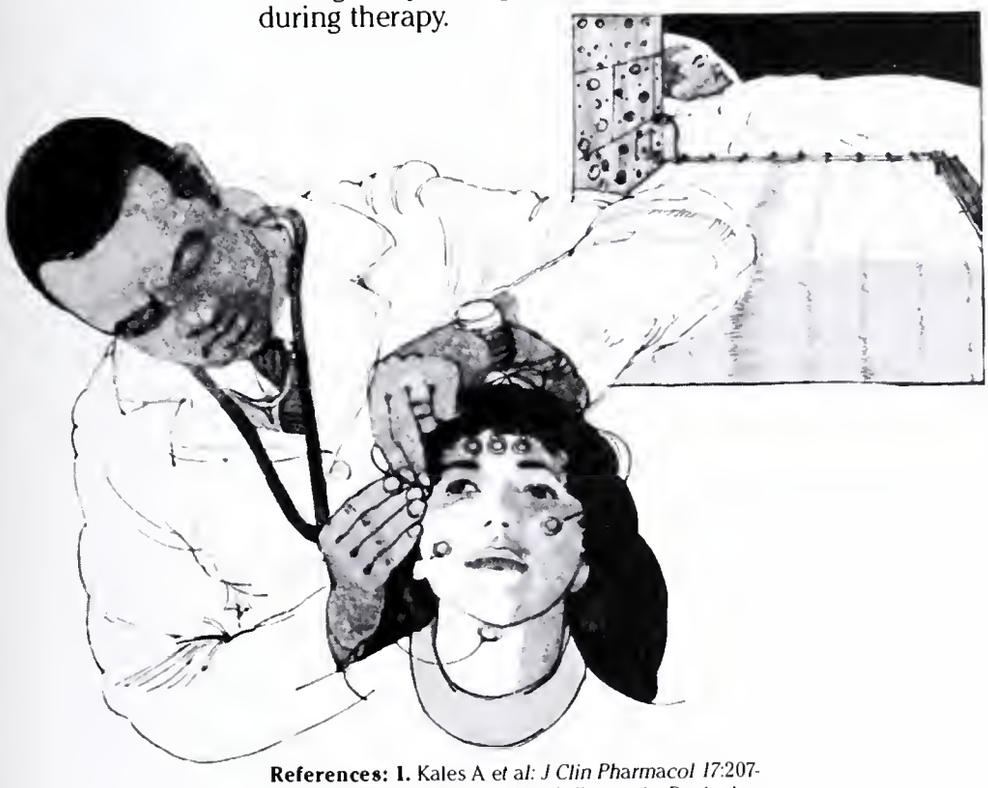
- During long-term therapy, which is seldom required, periodic blood, kidney and liver function tests should be performed.
- Contraindicated in patients who are pregnant or hypersensitive to flurazepam.
- Caution patients about drinking alcohol, driving or operating hazardous machinery during therapy.



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Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, *e.g.*, excitement, stimulation and hyperactivity.

Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg recommended initially until response is determined.

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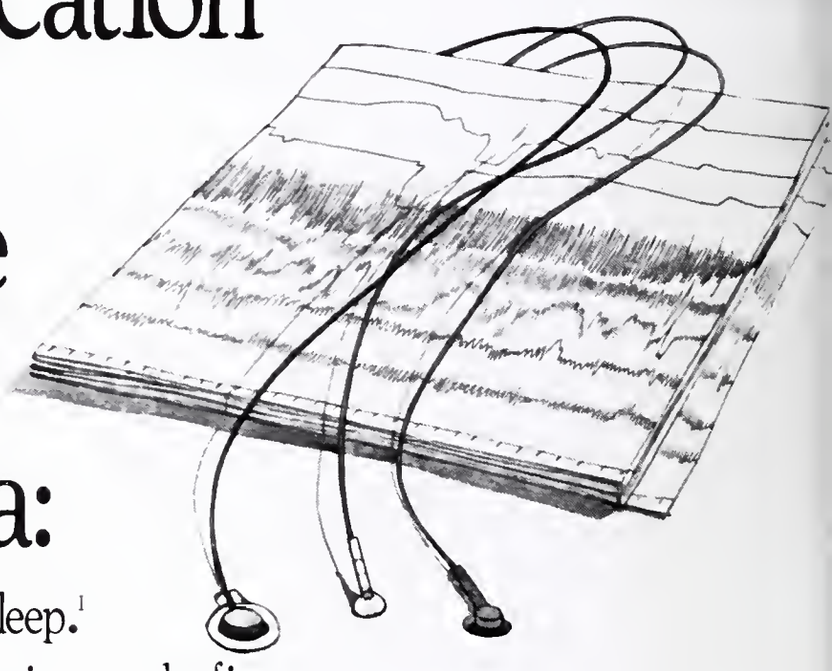

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ALASKA MEDICINE

Volume 25, Number 2
April/May/June 1983

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ALASKA MEDICINE

Official Journal of the Alaska State Medical Association

4107 Laurel, Anchorage, Alaska 99504

Volume 25 | April/May/June 1983 | Number 2

ALASKA MEDICINE is the quarterly journal of the Alaska State Medical Association; Alaska Medicine, 4107 Laurel, Anchorage, Alaska 99504. *ALASKA MEDICINE* is printed by Northern Printing, Co., Inc., 655 Warehouse Avenue, Anchorage, Alaska 99501.

ABOUT THE COVER: *Hi-Latitude Study Camp Headquarters at the 7300 ft. level Mt. McKinley East Fork Kahiltna Glacier, June 1982* by W. J. Mills, M.D.

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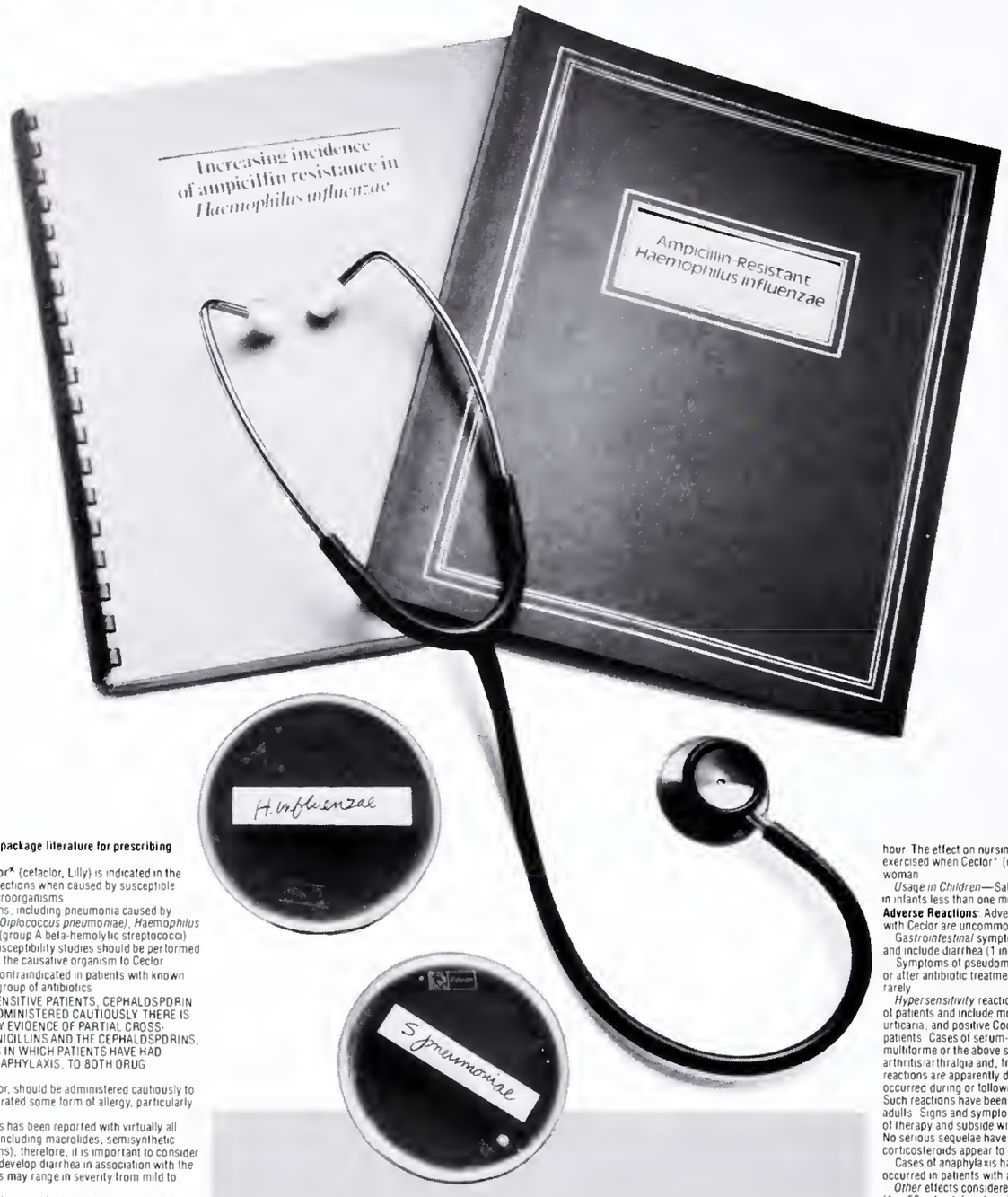
NORTHERN PRINTING ANCHORAGE

An added complication... in the treatment of bacterial bronchitis*



Some ampicillin-resistant strains of Haemophilus influenzae—a recognized complication of bacterial bronchitis*—are sensitive to treatment with Ceclor.[1-6]

In clinical trials, patients with bacterial bronchitis due to susceptible strains of Streptococcus pneumoniae, H. influenzae, S. pyogenes (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Ceclor.[7]

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Indications and Usage: Ceclor* (cefaclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae (Diplococcus pneumoniae), Haemophilus influenzae,* and *S. pyogenes* (group A beta-hemolytic streptococci)

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Ceclor

Contraindication: Ceclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics

Warnings: IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES

Antibiotics, including Ceclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics (including macrolides, semisynthetic penicillins, and cephalosporins), therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening

Treatment with broad-spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, management should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation. When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C. difficile*. Other causes of colitis should be ruled out

Precautions: *General Precautions*—If an allergic reaction to Ceclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids

Prolonged use of Ceclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug

Ceclor should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended

As a result of administration of Ceclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinitest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip, USP, Lilly)

Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis

Usage in Pregnancy—Pregnancy Category B—Reproduction studies have been performed in mice and rats at doses up to 12 times the human dose and in ferrets given three times the maximum human dose and have revealed no evidence of impaired fertility or harm to the fetus due to Ceclor. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed

Nursing Mothers—Small amounts of Ceclor have been detected in mother's milk following administration of single 500-mg doses. Average levels were 0.18, 0.20, 0.21, and 0.16 mcg/ml at two, three, four, and five hours respectively. Trace amounts were detected at one hour. The effect on nursing infants is not known. Caution should be exercised when Ceclor* (cefaclor, Lilly) is administered to a nursing woman

Usage in Children—Safety and effectiveness of this product for use in infants less than one month of age have not been established

Adverse Reactions: Adverse effects considered related to therapy with Ceclor are uncommon and are listed below

Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70).

Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely

Hypersensitivity reactions have been reported in about 1.5 percent of patients and include morbilliform eruptions (1 in 100). Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Ceclor. Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome

Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

Causal Relationship Uncertain—Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician

Hepatic—Slight elevations of SGOT, SGPT, or alkaline phosphatase values (1 in 40)

Hematopoietic—Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40)

Renal—Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200)

[061782R]

* Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

Note: Ceclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information

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Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285.

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UNIVERSITY OF ALASKA, ANCHORAGE-SECTION OF HIGH LATITUDE STUDY, AND THE MT. McKINLEY PROJECT (1981-82-83)

W. J. Mills, M.D.

Dean Rau, M.D.

I. Historical: (Program Development)

For the past decade, sporadic and strikingly unsuccessful efforts were made to develop a medical teaching and clinical research program on the Anchorage campus of the University of Alaska. This association with the University was desired in order to obtain administrative accounting, and acceptance, of research grant funds; for research headquarters housing; and for the development of basic research laboratory facilities necessary for primary medical investigation. Such a program was considered a step toward obtaining increased participation in basic biological research in association with the University of Alaska Fairbanks investigators at the Arctic Institute of Biology.

The development of a planned research program began in 1973, with a discussion of an Office of Naval Research grant that was proposed to Dr. Wendell Wolfe, then Dean of the Anchorage Senior College. This college in 1974 became the University of Alaska Anchorage, and soon Anchorage area physicians and allied medical personnel were working with University departments on an invitation basis (lectures and conferences).

The University affiliation with area physicians increased in 1975. Encouraged by Dr. Lewis Haines, University provost, a team physician and sports medicine program was initiated. It was enlarged and continued by Dr. Frank Harrison, Chancellor, and after him Dr. David Outcalt, present Chancellor of the Anchorage University campus. This present program, operating from the office of the Athletic Director, Dr. Gene Templeton, has appointed physicians to the University of Alaska, Anchorage in Affiliate academic rank.

In 1976, the Health Occupations Facility and School of Nursing was born. Dr. Clair Martin was appointed Dean of the School of Nursing, a fortunate selection for the viability of the as yet to be founded Section of High Latitude Study. Through some stormy periods, he has managed to build the Nursing program and to encourage physicians and other medical personnel to participate in the University health teaching curriculum.

During this development period from 1973 to 1980, local University acceptance of proposed medical research was always present. Statewide University approval was seldom forthcoming. Despite intense interest by many in the Anchorage area, clinical research in the health science field remained primarily a preoccupation of those out of the University setting: either in local medical offices, or civilian or state or federal government hospitals or agencies. In the University sphere, research efforts were confined, in the health section, primarily on the Fairbanks campus.

Gradually the concept of 'research in one area only' changed. The causes of the change were many. The population of the south-central area exploded. Anchorage, not always willingly, became the largest city in the state. Four major hospitals appeared, and expanded, and hospital expansion continues. Nursing homes, a surgery center, and facilities for alcohol and drug abuse control and treatment were built.

Sophisticated and advanced intensive care units, coronary care units, a thermal unit, a special care nursery, an open heart surgery program, and a cardiovascular laboratory arrived.

Most importantly, the number of health personnel in all fields grew beyond any previous expectation. Talent abounded, investigative interest in Alaskan medical problems surfaced, and public interest in all aspects of health was demonstrated. All of this then helped advance further interest in Health research, competing with hunting, fishing, skiing, and Supercub time. Anchorage became a medical-dental-multi-problem referral center.

In 1979, Dr. Wayne Myers, chief of the WAMI (Washington, Alaska, Montona, Idaho) program wrote a letter to Dr. Jay Barton, President of the University of Alaska statewide system. He proposed a capital appropriation be requested in the form of a University endowment to create Professional and University positions in the health field. He gave high level priority to research needs in the Alaskan Arctic. He stressed the requirement for investigation in the area of Arctic Industrial Medicine and Health and in the field of Cold Injury. In essence he recommended the University concern itself in health matters, of importance to Alaska's citizens.

The greatest evolutionary change in the University attitude to medical research occurred in 1980. On January 25, 1980, the University Board of Regents unanimously accepted a 'Policy Statement'. The published booklet stated that 'the University of Alaska Anchorage will have the major responsibility within the Statewide System, for research in the Health Sciences, and will emphasize research in the Social Sciences.' The University of Alaska Fairbanks was listed as the Universitys' principal Biological and Physical Sciences institution, with that campus placing emphasis on 'organized research' and Doctoral degree programs.

This statement placed the area of cold injury investigation, including Hypothermia, Immersion Injury, Freezing Injury and other human Arctic medical problems, requiring study, directly in the research pathway of the projected Department of High Latitude studies at the University of Alaska Anchorage.

This action must also be considered as recognizing among other factors, that the Anchorage area was now the states' largest medical patient population center. It gave 'green light' signals for the development of research and investigation in much needed patient care areas. Most importantly, it allowed the development of a shared basic science study program on the Fairbanks campus in association with a similar human subject clinical program simultaneously under investigation on the Anchorage campus and in the nearby hospitals.

All of this, too, points out what any professional person knows, whether in the world of Academia or in the town area of the private sector - namely that despite any official determination of 'what' research would be conducted in 'whose' area, it was still necessary to note that intelligence, interest, research, study and investigation are not dictated nor birthed by governing boards or at the whim of governments or institutions. If any one member of any one campus, or community, has conceived some new or daring or interesting and worthy research program, he should be encouraged to dvelop that interest, regardless of his geographic position. The need to investigate new areas, or old, or to test and improve the scientific method, certainly is not to be considered territorial.

However, despite these changes, research development on the Anchorage campus still remained a problem. Upon the mention of programs of research, the ground still quivered between North and South and amongst members of the Board of Regents, and in Administrative circles.

In April, of 1980, a research grant request was submitted (by Dr. Mills) for the Alaska State Legislature for funds to develop a section of High Latitude Study at the University of Alaska Anchorage. Approval for this action was obtained through Anchorage University officials who felt that if, (in the unlikely event), grant money was obtained from the legislature, they would welcome the new area of research and study.

The research grant request was accepted. The application was guided through the legislature by Mr. Russ Meekins, then Chairman of the Finance Committee, who believed in University progress in Anchorage, and University growth. The new section, if approved by the regents, was to be placed in the School of Nursing, since no College of Health Sciences was yet on campus. The grant request succeeded, and $850,000.00 was allocated for the program development at the University of Alaska Anchorage.

The resulting furor is a matter of public record, discussed widely on radio, television, and in the newspapers. For a short while, Mr. Meekins and colleagues in the legislature and Dr. Mills and colleagues in Anchorage were fortunate to escape with minor chilling from the cooling winds out of the northern wastes, and from elsewhere in the state.

Then in most gratifying fashion, came statements of support from the University Faculty in Anchorage, from Dr. John Bligh at the Institute of Arctic Biology and his colleagues, and from the WAMI program staff and other faculty members in the Fairbanks and statewide campus areas, and especially from Dr. Jay Barton, University President.

The Board of Regents accepted the new funding, and agreed to a three year trial program. The project was assigned to the School of Nursing with direct administrative responsibility of the section given to the Dean of that school, Dr. Clair Martin. He was to report the program progress to Dr. David A. Outcalt, then Vice-Chancellor of Academic Affairs in Anchorage.

Eventually in January, 1981, the project was set in motion. Dr. Mills was named section head and principal investigator, aided by Dr. Dean Rau. Mr. Dale Walberg was appointed Administrative Aide and Computer Assistant, and Mr. John Quimby was enlisted as an

Administrative Aide and graduate student.

Over the next two years, other faculty appointments were made in the School of Nursing, Department of High Latitude Study. These appointments included Drs. Hackett, Mallin, Mohn, Monlux, Nemiroff, Nyboer, Paton, Rhyneer, Steer, Stewart, Whitcomb, Wilder and Wilson. Eventually the three year program was expanded to permit a five year projection. This included the development of a cold injury data base book, preparation of data storage and computer science, a further study of biofeedback methods, and protocol studies of various aspects of freezing and nonfreezing injuries. A sophisticated scientific instrument collection accumulated for field and hospital use.

Many problems presented in the first year of operation. The University had to become accustomed to the problems of medical immediacy. Those problems were the hourly, or daily events occurring during a field (street or wilderness or sea) rescue, hospital or emergency room needs, or thermal unit or emergency requirements.

These included any and all problems that might arise in a given twenty-four hour period, night or day, vacation time, work time, weekends, Christmas or summer holidays, any problem, any time, anywhere. It became apparent that the sudden, unexpected medical supply needs familiar to medical personnel, were strangers to the fiscal year accounting budget planning.

The physician on the other hand had to then become aware of new accounting methods, new University administrative procedures, and constraints that were laid down in concrete and iron, necessary when public tax dollars must be accounted for, and when department spending and actions are exposed to public scrutiny.

Depending upon your point of view, the 'other world' or the 'real world' had arrived, for both parties.

The purpose of the High Latitude Study Grant as originally presented to the legislature was given as follows.

A. The Purpose: A Five Year Investigation is Planned, to:
   1. Collect and evaluate all available information from reliable sources regarding Man and the Cold Environment.
   2. To continue clinical and laboratory investigation in the treatment, prevention, and care of the victim of cold trauma.
   3. To develop standards of cold injury care, especially for Alaska; and disseminate information required for the diagnosis and treatment of Hypothermia, Freezing, and Nonfreezing Injury (Frostbite and Wet Cold Injury), and Sea Water Immersion Injury, including fresh and salt water drowning.
   4. To study and develop prevention and treatment programs for the Alaskan athlete in the cold, the oil and gas worker in the cold, the commercial fisherman, and other workers of sports men and women exposed to cold weather and cold weather survival conditions.
   5. To settle age old area of controversy, if possible, with the utilization of highly spohisticated instruments in the areas of Hypothermia and Frostbite.
   6. To measure tissue temperature, tissue pressures, and to measure methods of determining depth of injury due to freezing tissues.
   7. To develop better methods of resuscitation of the victim of deep hypothermia, including early rescue care and transport from outlying Alaskan areas, to areas of definitive treatment.

Further it was planned that:

   8. The Department of High Latitude studies would be administered by the School of Nursing on the Anchorage campus.
   9. Research studies were to be carried on in local hospitals, including Providence Hospital, Alaska Hospital, and the Alaska Native Hospital in Anchorage.
   10. The investigation teams would include members of the medical staff of the Alaska Native Hospital system statewide.
   11. Cooperation planned with the Alaska National Guard, and if research arrangements were agreed to, with the U.S. Armed Forces elements, including the U.S. Navy and Marine Corps. A research grant of smaller magnitude has been held in the past with the U.S. Navy, Office of Naval Research.
   12. Close liaison planned with the University of Alaska Anchorage, and the University of Alaska Fairbanks, and with the private sector of construction, petroleum activities, and fishing interests in Alaska. When a Life Science building, as contemplated, is completed on the University of Alaska Anchorage campus, it is hoped that this department will become a permanent University of Alaska department, and its investigation and research activity continued.
   13. Liaison and consultation is planned with the Arctic Institute in Fairbanks, and the Department of Physiology, University of Alaska Fairbanks. (At present the High Latitude section and the Institute of Arctic Biology are sharing a research program directed toward a Physiological study of the Sheep Heart during profound hypothermia. The principal investigators of this program on the Fairbanks campus are Dr. John Bligh, and Dr. Michael Philo, aided by Dr. William Doolittle and Dr. William Mills.)

II. **The McKinley Project (Denali)**: (or the study of acute mountain sickness, high altitude pulmonary and cerebral edema, and the use of Impedance Plethysmography in measuring Total Body Water, Pulmonary Edema, and Cerebral Edema.)

All the while the High Latitude Section was developing and for years before that, those of us caring for the victims of freezing injury, hypothermia and other cold related trauma, were aware that from April to September (during our 'warmer periods', in this State) our arctic mountains provided a major source of cold weather victims.

Mt. McKinley (Denali) led all the rest. For the investigator and clinician, it became apparent that from this cold, high (20,320 feet) (6194 meters) arctic mountain, every conceivable form of cold Injury problem presented. Climbers were injured in falls on the slopes or falls into crevasses, or were victims of avalanche. Some sustained injury due to poor choice of clothing, equipment failure, poor judgement, or failure to recognize the dangers in climbing a high and cold mountain. Many were victims of acute mountain sickness, high altitude pulmonary or cerebral edema, and many appeared to be dehydrated and hypovolemic.

Victims of freezing injury presented with freezing superimposed upon immersion injury, or had a freeze-thaw or re-freeze injury, or freezing superimposed upon compartment pressure syndrome due to circulatory occlusion. Some were victims of trauma with fracture or dislocation or soft tissue injury, with superimposed freezing injury or hypothermia or all three problems.

Each year hundreds of climbers attempt the assault on the McKinley (Denali) slopes. A large number are successful. Many are not. Over the years 12-16% (as the records of Dr. Mills office demonstrate, and the climbers questionnaire and statistical survey of 1981, 1982 confirm) sustain some form of cold injury during their climbing on McKinley. Over the years 1% of all those climbing Mt. Denali die.

Mt. McKinley (Denali) is perhaps the largest, most reliable outdoor, volunteer, risk performing, cold injury experimental laboratory in North America. Climbers of all ages, wearing all forms of foot gear and clothing, visit its slopes. Their experience varies from expert to novice. Their equipment is variable as is their knowledge of its use. All are eager and most are bright. Many have insufficient respect for this Arctic mountain, but all provide the investigator and researcher, clinician and rescuer, with data and experience that is impossible to obtain anywhere else and in any other way.

No human resources committee of any University would allow human subjects to expose themselves, their lives and limbs, to such hazards as a climber does each year on the McKinley (Denali) slopes. In order that all this data could be gathered, and integrated and interpreted and the results applied to consider new methods of rescue and care, particularly in the field as well as in the hospital, a research study of the Mt. McKinley (Denali) area was begun in the spring of 1981.

In June and July of 1981, Dr. Drummond Rennie and Dr. Peter Hackett ascended Mt. McKinley (Denali) seeking areas suitable for research stations. As a result of that study, it was determined to place a research camp at the 7300 foot level (2225 meters) on the East fork of the Kahiltna Glacier, and a high camp 14,300 feet on an open glacier below the west face. The high camp was on the West Buttress route, and was accessible to climbers descending from the West Rib and the South Face. The high camp was readily accessible too, for helicopter landing and take-off, and may be accessible to turbo-charged light aircraft on skiis.

That same climbing season, 1981, a climbers questionnaire collected data from 296 climbers. In 1982 a climber questionnaire collected from 397 climbers, or more than 50% of all the individuals who attempted to climb Mt. McKinley (Denali) that year. A third questionnaire will be circulated for 1983. Data analysis was prepared by Mr. Dale Walberg and Mr. John Quimby, High Latitude Department personnel.

The questionnaire is in four parts, collecting data of:

1. Demographic material
2. Clothing and equipment
3. Ascent questions
4. Medical problems encountered on the mountain by the climber

Some of the questionnaire material returned in 1982 indicated that sixteen (16) of the 397 climbers reported experiencing hypothermia, or 4% of the total. Sixty-four (64) climbers of 16% of the total admitted to freezing injury. Eighteen (18) climbers or 31% of those who admitted to frostbite injury, walked on their frozen feet, ranging in time from one to seventy-four hours before rescue. Thirty-four (34), or 59% of those sixty-four freezing injury climbers, thawed the frozen part while on the mountain, and seven (7) of the group or 12.3% of the total reported refreezing the frozen part. Of two hundred and ninety (296) climbers who returned this questionnaire in 1981, ninety-one (91) or 31% claimed experiencing altitude sickness during the ascent.

In the fall of 1981, Dr. Dean Rau, a veteran of Mt. McKinley and other mountain climbing expeditions, was appointed the 'mountain boss', or the Mt. McKinley (Denali) project director for the season 1982 and 1983.

The research capability received a major boost in 1982, and again in 1983, in being able to associate the research team planning and logistical support with the training schedule of the Aviation Brigade of the 172nd Infantry Brigade, Fort Richardson, Alaska, commanded by Major General Nathan Vail.

Direct support in the field (Talkeetna and Mt. McKinley (Denali)) was provided by the officers and men of the 242nd Aviation Company of Ft. Wainwright, Alaska, and by the members of the Mountain Warfare Training Center at Ft. Greely, Alaska. Field Command of their group in 1982 was in the hands of Lt. Col. Thomas Leavitt, C.O. of the Mountain Warfare Training Center, and in 1983, is under the command of Lt. Col. John Hite, the new C.O. of the Mountain Warfare Training Center.

In 1982, the U.S. Army Chinook helicopters airlifted

almost 6,000 pounds of research gear, including a Hansen Weatherport Hut, to the 14,300 foot level (4,359 meters) of Mt. McKinley (Denali), and over 2800 pounds of gear to the base camp at 7300 feet (2225 meters) on the East Fork of the Kaliltna Glacier. The chief pilots for this hazardous mission were CWO_4 Terry Bridgeman in 1982, and CWO_4 Roger Newsome in 1983. The insertion and extraction dates were all subject to the vagaries of mountain weather, including poor visibility and high winds.

All the work performed on Mt. McKinley (Denali) in 1982, was to be reported in 1983 including the following projects and with the following personnel and their protocols.

The science advisor and biomedical instrument wizard and consultant on the mountain in 1982 (and now in 1983) was Dr. Karl Maret, a veteran, along with Dr. Peter Hackett, of the successful American medical research expedition of 1981 to Mt. Everest.

In 1982, as in 1983, the research season is planned from 15 April to 1 July. The base camp at 7300 feet, used in 1982, is not planned for 1983. Instead a base of operations for more accurate low level area measurements is in place at Talkeetna. Climbers will be interviewed and examined there, prior to moving up to the 7300 foot airstrip on the Kahiltna glacier.

The military and university airlift plans are being coordinated with the Mt. McKinley Park ranger officials, especially with Mr. Robert Gerhard, Mountaineering Ranger, U.S. Department of Interior, Mt. McKinley National Park.

One of the primary efforts in 1982 (as in 1983) was to be directed to measurement of water and the degree of dehydration experienced by climbers and active personnel on the mountain. Evaluation of total body water by Impedance Plethysmographic methods was to be a primary study, by including physiological monitoring for 1982, other than the work performed by Dr. Hackett and colleagues.

However, the difficulty of obtaining adequate impedance equipment and the problem of programming the instruments, as well as their late arrival, detracted from the non-invasive impedance water studies for that year (1982).

In 1983, to measure water content using non-invasive techniques, we have utilized a bioelectrical impedance analyzer, Model BIA-101, designed at the High Latitude Projects' request by RJL Systems, in Detroit, Michigan. This analyzer, utilizing four electrodes, and measuring resistance and reactance in ohms, has allowed us this year to quite accurately measure total body water and hopefully to chart water loss during physical activity. The design engineer, Mr. Rudolph Luedtke, has developed an impedance plethysmograph with a current output that is constant over a long range, permitting increased accuracy of measurement. This unit, available for the 1983 climbing season, it packaged in an aluminum case and contains the bioelectrical impedance analyzer, a cassette programmer, a physiological data computer analyzer with a display window, accepting the cassette work programs, and a printer. At the completion of the examination of the climber (less than 10 minutes) the data of percent body water, lean body mass, measured fat, and phase angle is complete. This unit is battery operated as well for field use.

As well as measuring total body water loss, the unit is now (hopefully) programmed to include measurement of water content of head and also thoracic cavity. By this means, we hope to gather accurate quantitative measurements of high altitude pulmonary cerebral edema, as well as determining existing levels of dehydration and hypovolemia.

The techniques used and theoretical background for this impedance plethysmographic study are the result of the pioneer work of Jan Nyboer, D.Sc., M.D. He is recognized as a leader in the field of impedance measurement, and has done much to coordinate impedance curves with mechanical vascular phenomena in various parts of the body. He first introduced our research group to impedance plethysmography through his son, Dr. Jan Nyboer, a research member of the High Latitude Study, and a practicing Anchorage Opthomologist.

The principle of impedance measurement, as understood by the orthopedically trained authors, is that body mass may be divided into Ionic (fluid, blood) and Cellular (structural) components. These components permit measurement of electrical conductance in terms of Resistance and Reactance. When edema sets in, Ionic values (fluid) increases, and the Reactance values on the plethysmograph unit drop in value. It had occurred to us then that we might have a quantitative method of measuring for cerebral and pulmonary edema, as well as total body water, to be done by non-invasive techniques, even in a hostile mountain environment.

Others have investigated the use of this instrument, to measure congestive heart failure fluid levels, pulmonary edema, regions of venous thrombosis, and the measurement of total body and regional body composition, as well as its use in pulmonary function studies.

It has long been considered by the authors, that much of the pathophysiology of cold injury, freezing injury, and hypothermia is secondary to dehydration. This results in metabolic changes, loss of heat, disorientation, leading to 'failure to cope in mountain situations' and eventually even cold injury, accident or death.

With this plethysmograph unit we hope to measure fluid amounts for total body and segmental body areas comparing this data with clinical analysis and data derived from examination of dehydrated climbers, with or without high altitude cerebral or pulmonary edema or fluid loss or shift of fluid from other cause. Also from this data, further measures of fatness and leanness will be interpreted.

It should be noted that power for the 14,300 foot level camp in 1982, as in 1983, was and is to be provided by solar panels generously loaned without

charge by the Panasonic Corporation. These panels send a stored charge to a 12-volt battery system, at 25 amperes. The small Honda generator, the back up power support for the scientific instruments, was seldom required because of the surplus electrical output generated by the solar panels at the high camp.

Another investigation in 1982 involved controlled and uncontrolled subjects utilizing biofeedback techniques to avoid stress, and to demonstrate the effectiveness of biofeedback in providing peripheral vasodilitation upon demand, to the extremities, in an effort to avoid cold injury.

Biofeedback techniques have been utilized locally by Dr. Mills, al beit in haphazard fashion, since 1976. This has been especially utilized in cases of sporadic 'labile vaso-motor activity'.

This activity or digital blanching, is present in many individuals, usually women, and seems unrelated to either Raynaud's phenomena, associated often with minimal gangrenous changes, or to Buerger's disease, (thromboangitis obliterans).

Clinically, previous efforts to warm those hands of patients with labile vaso-motor changes and intermittent vaso-constriction, and the warming of some post-thawed frozen digits, had been successful. This gave consideration to the development of the biofeedback program in the field, and on Mt. McKinley (Denali) as a project of some importance, especially to the military forces in cold climate training and combat.

These concepts were related to Dr. Bruno Kappes, University of Alaska Anchorage, who then, working with the High Latitude project ran measured treatment with biofeedback methods in the Providence Hospital Thermal Unit, Anchorage. He further utilized these techniques in the cold in the field on the University of Alaska Anchorage campus. There was successful transfer of heat to cold or cooling digits.

The ultimate consideration here is that the likely victim of cold onslaught might be taught to transfer heat from the core to the extremities to avoid freezing or nonfreezing cold injury. The data gathered from the climbers tested is considered important to the military medical program. This is so, in that a soldier, under fire, perhaps pinned down in an area where shelter, food, and water are in poor supply or not available, and facing certain extremity cooling and injury might then utilize the biofeedback training methods to avoid severe vaso-constriction and damage.

The question then that arises, is whether transferring heat from the core, in order to warm the extremities, would reduce the deep body heat loss a significant amount. If so, then the biofeedback effort extended over a long period of time, if help was not forthcoming, might induce an even greater cold problem than frostbite, namely depressed core temperature, and hypothermia.

The mountain effort in 1982 was considered a measure of the High Latitude Study Departments' ability to develop, implement, and control their projects on the mountain and survive well themselves. The Mt. McKinley (Denali) area represents a very cold, arctic and hostile environment. This mountain has been a major outdoor laboratory for those interested in cold injury and has provided a basis for cold injury evaluation almost year round.

A study of the effect, hair, particularly beards and long head hair will be performed, to demonstrate by telethermometery, using skin sensors, just what the advantages of hair or nonhair is, particularly in beards, for the climbers. This is of interest to the military too, since there is a considerable hiatus of thought between civilian and military persons regarding facial hair and hair styles. Whereas most mountain guides, and mountain climbing groups, feel that a beard is helpful, the military feeling not only is that it is harmful, but causes considerable distress in the event of freezing injury of face or burn of face, either from sun or excess heat from any cause.

Further, this year we will consider the effect of cold (as in 1982) on the instruments we use, all of which will be primarily battery-operated.

We will be carrying out evaluation too, of the performance of all our physiological instrument monitoring methods using primarily non-invasive techniques.

A minor project will be consideration of better methods of living, coping, and hydrating those who camp, play, climb and work at altitude with marginal support.

It is further of great interest to determine the effect of the widespread use of scuba socks at altitude, since some climbers have sustained serious injuries using this foot cover. As a presumption, we consider that above the 15,000 foot level, on a cold arctic mountain as McKinley (Denali) perhaps even lower, where the atmosphere may be almost half that of sea level by atmospheric pressure recordings, that the expansion of the cellular spaces within the scuba sock, because of immobility of the rigid shoe, may cause reverse pressure (backward pressure) and compression of the subfascial spaces. These increased pressures in the compartments of hand and particularly lower leg and foot, may then cause compression of small arterial vessels and capillaries, whose pressure is no greater than 32mm. of mercury. When this pressure continues over a considerable length of time, increased compartment tissue pressures result, collapsing the small arterioles, and venules. This prevents capillary perfusion, resulting then in ischemia, a cold limb, and eventually freezing injury with resultant gangrene.

In 1983 the climbers that we can reach, and also our own group, before going on the mountain, will have a physical examination at the Anchorage or Talkeetna level. They will also have evaluation by Impedance Plethysmography, all prior to leaving for the mountain. Those on the research team will as a group provide one control segment for all our studies.

If it is at all possible, a further study is planned that has been performed in the past but without much control. Physical examination will be performed in the

process of interviewing climbers, particularly those available to us at the low levels of Anchorage or Talkeetna. An evaluation of the physical characteristics such as body weight, physical type, pulse, blood pressure, nailbiting or smoking habits, apprehension and hyperhydrosis or other signs that may indicate individual stress will be noted. This type of examination in the past has provided us with interesting clinical findings. We have considered that by interviewing climbers and doing the physical examination related particularly to the neurovascular system as well as what appears to be a scanning psychological study, that perhaps injury patterns or stress patterns can be anticipated. This study will be associated with a Minnesota Multiphasic Personality Inventory.

Very interesting scientific measurements were made by Dr. Peter Hackett in 1982 and these will be continued in 1983. In association with Dr. Mills and Dr. Rau and others, his measurements will be correlated with the impedance plethysmography studies.

Hackett, in 1982, performed measurements of the hypoxic ventilatory response, using vital capacity minute ventilation, and exercise ventilation, heart rate and oxygen saturation, with resting vital signs, for over 120 patients. A mountain sickness score has been computed for each subject based upon their symptomatology.

A second protocol by Hackett and colleagues is that of examining arterial saturation in rest and exercise inside a heated hut, then outside in the cold. Hackett has been pleased with the willingness of climbers to participate in these studies, as have we all. He notes that intense interest was obvious in what we were doing in the 1982 study, and feels that this interest was also enhanced because there was nothing invasive in the 1982 year, no obvious harmful side effects were demonstrated, and the researchers provided a warm hut with a stereo system and agreeable company, and often food and liquid, so that availability of subjects was not a problem for any work at the 14,300 foot camp.

During his period at the 14,300 foot level, Hackett collected for the project, data on barometric pressures, and summit measurements, and developed a new and sensitive indicator of subclinical pulmonary edema. This consisted of observing a disproportionate increase in heart rate, and a drop in arterial saturation with mild to moderate levels of exercise. This is to be further to help detect early pulmonary edema.

Much of the scientific equipment utilized on the mountain project was loaned by Dr. John West, the leader of the American Medical Research Expedition to Everest in 1981, and by the Hewlett-Packard Company including the use of the ear oximeter.

During the 1982 climbing season there were no deaths. This of course is the result of fate, chance, weather, climbers experience, and if one wishes, great good fortune. However, it is also considered that much of the record was related to the willingness of research members at the high level camp to perform first aid measures, and to be not only a research station but a high altitude mountain dispensary as was required. This was brought home to the public and to all of us involved in the project, when two Japanese mountain climbers fell at a high level on Mt. McKinley, at the 16,000 foot level on the west rib. They were found by Brian Okonek, and then brought to the high station at the 14,300 foot level by the research party members. Both had sustained head injuries, and both were in critical condition. Both had sustained cold injury as well. What was most fortunate, was that the patients upon arrival, found waiting for them as members of the research group, Dr. Richard Lehman, an Anchorage neurosurgeon, and Dr. Sigma Alpha and Dr. Scott Emery, both Anchorage neurologists. Where else in this world would a head injured patient, even two, find such a neuromedical team at 14,000 feet awaiting their arrival after rescue.

These three physicians were able to render neurological care, along with emergency care as rendered by Drs. Hackett and Hollingshead and his colleagues, while the injured climbers awaited rescue. Two members from the research camp at the 7300 foot level, Dave Currothers and John Quimby, the latter a graduate student at the University of Alaska Anchorage with this project, attempted to carry intravenous fluids from the 7300 foot level to the 14,300 foot level but were turned back by storm and deep snow. Both climbers are alive today, having been lifted off the mountain by a U.S. Army Chinook, of the 242nd Helicopter Company.

The success of our project in 1982 was in large part due to the pre-ascent field work and camp construction by Miss Diane Calamari and Mr. Brian Okonek of Talkeetna, and the field employees of the research project. These two, by their diligence, and their mountain lore and their willingness, have done much to contribute to the success of the mountain research program.

A major interest of all of us involved in the mountain project, has been transport, high altitude type, for equipment movement and for rescue. We are indebted to the U.S. Army for its helicopter support and its rescue service. Fixed wing travel by K2 Aviation, Talkeetna Air Taxi and Hudson Air Service provided further team support and rescue.

One last consideration is posed for mountain rescue. When weather forbids air travel, and the victim cannot travel without aid, there if left only transport by akio, or stretcher, or man-carrying methods. The consideration is being given to rescue by dog team, already demonstrated on Mt. McKinley (Denali) by Mr. Joe Reddington and Miss Susan Butcher with Ray Genet, and by balloon rescue with fixed lines. The use of hovercraft using a towed platform with or without forward propulsion has also been given some thought.

Further the placement of a fixed rescue hut, rock based, near the high basin between 14,000 and 17,000 has been given thought as well. Not all of these are considered methods of rescue or have found favor with 1) the climbers, 2) the Park Service, 3) environmen-

talists, all of whom want a pristine unblemished mountain.That would be nice. It would be proper too, we suppose, to say that anyone climbing Mt. McKinley (Denali) does so at his own risk, and if in trouble can extricate himself (themselves). This is an argument presented by many, especially after costly nonreimbursed rescue efforts.

All true - but the fact remains that once someone is in trouble on the mountain, Federal, State, Borough and Private groups head to the rescue, as good citizens will whenever help is required, for almost any reason. The rescuers too deserve consideration, in order that they not be injured or die for their efforts. So better, safer, quicker methods of mountain rescue are sought, for those times when the mountain weather forbids the usual mountaineering ways.

PERSONNEL

These people staffed the 14,300 foot camp:

Dr. Ed Mohn, Anesthesia, Anchorage, Alaska
Mr. Tom Fakler, Educator, Anchorage, Alaska
Mr. Brian Okonek, Guide, Talkeetna, Alaska
Dr. John Erkkila, Orthopedic Surgeon, Corvallis, Oregon
Dr. Karl Maret, Bioengineering, San Diego, California
Dr. Dean Rau, Orthopedic Surgeon, Anchorage, Alaska
Dr. Peter Hackett, Physician, Mountain medicine expert, Bishop, California
Mr. Rob Roach, Graduate student in Physiology, Cornell University, Ithaca, New York
Dr. Holm Newmann, Orthopedic Surgeon, Corvallis, Oregon
Mr. Chris Hanoldt, Climbing Instructor, Corvallis, Oregon
Dr. Frank Hollingshead, Emergency Medicine, Anchorage, Alaska
Dr. Jim Sprott, Internist, Anchorage, Alaska
Dr. Scott Emery, Neurologist, Anchorage, Alaska
Dr. Sig Alpha, Neurologist, Anchorage, Alaska
Dr. Dick Lehman, Neurosurgeon, Anchorage, Alaska
Ms. Diane Calamari, Guide, Talkeetna, Alaska
Dr. Keith Brownsberger, Internist, Anchorage, Alaska

These people staffed the 7300 foot research camp:

Mr. John Quimby, Graduate student in Physiology, U. of Alaska, Anchorage
Mr. Larry Johnson, R.N., Providence Thermal Unit, Anchorage, Alaska
Mr. Scott Champman, Graduate student in Physiology, U. of Alaska, Anchorage
Mr. Doug Ericson, Department of Athletics, U. of Alaska, Anchorage
Mr. Robert Leach, Graduate student, U. of Alaska, Fairbanks
Ms. Allison Worcester, Nursing student, U. of Alaska, Anchorage
Mr. Ray Hanoski, X-ray technician, Providence Hospital, Anchorage, Alaska
Ms. Bobbi Patoprsty, Physicians Assistant, Anchorage, Alaska
Ms. Candy Kodama, R.N., Thermal Unit, Providence Hospital, Anchorage, Alaska
Ms. Karen Healy, R.N., Thermal Unit, Providence Hospital, Anchorage, Alaska
Dr. Bruno Kappes, Psychologist, University of Alaska, Anchorage

At the University of Alaska Anchorage these people were instrumental in administrative aspects of the project:

Dr. Clair Martin
Mr. Dale Walberg
Mr. Bradley Young
Ms. Ruby LaCasse

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SUMMARY OF TREATMENT OF THE COLD INJURED PATIENT

HYPOTHERMIA

William J. Mills Jr., M.D.
Dept. of High Latitude Study
University of Alaska, Anchorage

The Initial Management of Thermal Injuries
The University of Alaska
and
Providence Hospital
Anchorage, Alaska
March 11, 12, 13, 1983

GENERAL HYPOTHERMIA

Confronted with the victim of cold injury, first consideration is a determination of the condition of the patient, as in any emergency. The degree of hypothermia present is of prime concern. General body cooling and loss of heat, with exhaustion of caloric reserve and severe depression of core temperature, may lead to death. Homothermic control is unstable and often lost at temperatures below 94°F. (34.5°C.). Continued cooling, unrelieved heat loss, may result in coma and eventually cardiorespiratory failure. Doolittle[20] has succinctly and precisely defined one major (and early) facet of hypothermia management—"In the very beginning, when concerned with the victim(s) of hypothermia, THINK HEAT."

Many hospitals and rescue units do not have thermometers or temperature probes that read below 94°F. (34.5°C.). This often delays or prohibits the proper diagnosis.

Many hypothermic patients are dehydrated and hypovolemic and demonstrate mild to severe acidosis and evidence of hyperkalemia either after or during warming. The degree of awareness and consciousness has been correlated with the level of hypothermia in both adults and children, and it is obvious that cerebration, physiological responses, and even shivering ability are present at much lower levels than previously considered likely. The optimum solution to the problem of hypothermia in the emergency area is dependent upon the time permitted to solve the complex metabolic and cardiac and chemical changes as they appear. More time is obviously given the treating area to care for the patient by utilitizing slower, spontaneous warming methods — (three to eight hours) — and less is given when the rapid warming methods are utilized — (thirty minutes to one and one half to two hours). Under controlled warming, good result is demonstrated by all methods utilized. However, the patient with associated freezing injury appeared to obtain better extremity anatomical and functional result when the rapid warming and thawing methods were utilized in warm water, 95°-100°F. (35°-37.7°C.).

The problem presenting in hypothermia is:

1. Lowered core temperature
2. Decreasing function of metabolic system
3. Dehydration
4. Loss of caloric reserve
5. Enzyme system dysfunction
6. Hypoxia of tissues and transfer to anerobic metabolism
7. Metabolic acidosis
8. Renal dysfunction
9. Increasing loss of neuro-regulation
10. Fluid shifts and electrolyte imbalance
11. Metabolic ice box
12. In the field — death from total systems cessation; or after rescue — life or death, depending on gradual, orderly controlled reorganization of organ systems.

If found alive by rescue personnel, the victim may be essentially in a "metabolic icebox", in a mid-lethal state, so that further exposure will result in death from vital organ cooling and warming may, if uncontrolled, result in death because of 1) uncorrected acidosis, and the sudden effect of released metabolites or 2) increased serum potassium levels resulting in cardiac excitation, or 3) hypovolemic shock.

It should be noted that the cold heart is in a fragile state and that it is possible that aggressive manipulation using C.P.R. (cardiopulmonary resuscitation) or efforts to cardiovert a heart not metabolically prepared to accept such stimulation, may result in irreversible cardiac failure.

Knowing the problem then, what are we attempting to do? The solution should include:

1. Safely, under control, rewarm the "cooled", "cooling" body, and elevate the core temperature
2. Obtain total physiological control of the patient by:
   a. Adequate airway control
   b. Restoration of fluid electrolyte imbalance
   c. Correction of dehydration
   d. Correct the acidosis or alkalosis
   e. Restore renal function
   f. Develop adequate intravenous access (multiple), CVP Line
   g. Properly monitor the heart, vital organs, fluid intake and output
   h. Recognize and/or treat all of the conditions prohibiting immediate recovery.

In order to do this, it is necessary that you have immediate control of the patient's rescue environment or warming environment and immediate organization of the rescue and treating personnel. Depending on the warming method, the patient may rapidly come to responsive state and therein lies his great danger. While in the field in his "metabolic ice box," the patient is for awhile at least, unless cooling continues, cold but often alive. His dangerous period and likelihood of metabolic and cardiopulmonary failure lies in the warming area and in the hospital regions or rescue regions.

Therefore a planned approach to the problem is essential, and it is important that physiological control be obtained as soon as possible. In this regard, the careful patient handling, the establishment of the airway, thorough evaluation of the patient and the early monitoring of temperature, electrocardiogram and urinary output is essential. The control, as noted above, includes initiation as soon as possible of the I.V. leads, blood gases and electrolytes, and repetitive monitoring of these values.

The correction of the hypovolemia, utilizing glucose and water solutions or physiological saline, once baseline blood gases and electrolytes are obtained, is demanded, and then with those baseline studies, sodium bicarbonate may be given for correction of acidosis and Mannitol or Lasix to aid in development of renal perfusion. Fluids given should be warmed to phvsiological levels. Do not assume that the patient is in acidosis unless absolutely necessary, because acid-base values may indicate that for other disease or injury or loss of H + Ion, because of gastric suction the patient may occasionally be in a state of alkalosis.

Once the patient is *under total system control,* warming by the method best suited to the emergency area or hospital facility is ulitized. These include:

First, warming by your most familiar effective method, as

A. *External Passive Warming* to include dry clothing and dry blankets, insulated mats and warm shelter if in the field.
B. *External Active Warming* as warm blankets, Norwegian charcoal body warmer, warming cradles, radiant heat, circulating warm water blanket, rapid rewarming in a tub, whirlpool or Hubbard tank.
C. *Internal (Intracorporeal) Warming* as warm enemas, gastric lavage, inhalation warm moist oxygen or air, (100-110°F.) (37.7-43.3°C.) or warmed intravenous solution, (100-106°F.) (37.7°-41.1°C.)
D. *Internal (Extracorporeal) Warming* including peritoneal dialysis, hemodialysis, veno-arterial shunt with extracorporeal heat exchange and disposable oxygenator and partial-cardio-pulmonary bypass.

The purpose of the treatment is to:

1. Restore a normal blood volume and overcome dehydration
2. Restore the acid-base balance
3. Restore a proper electrolyte balance and avoid a post-warming hyperkalemic state resulting in cardiac excitation
4. Encourage a normal renal flow
5. Avoid serious cardiac arrhythmias and arrest of the heart; and in this regard, it is recommended that consideration be given to the fact that the cold heart, at very low temperatures, is not responsive to defibrillation procedures and electroshock, and this heart in fact may not be in the true cardiac arrest state of the pattern familiar to us in a normothermic state, but may represent truly the very delayed metabolic response to severe cooling. It does not seem logical to stimulate by closed chest massage or electrostimulation a heart that is unable to respond to that stimulation at such low temperatures. This matter is currently the subject of much debate and investigation.

At this stage, it would appear that the smaller, outlying hospitals need not be concerned that all of the warming methods mentioned are not available to them. Those patients who had spontaneous controlled warming of the hypothermic state, with or without rapid rewarming of the frozen extremities, with use of a mechanical respirator (or anesthetic gas machine if available) most likely are utilizing the safest method of recovery. This is particularly so, since under *physiological controlled warming,* there is sufficient time for continuous correction of any imbalance, as the patient approaches a normothermic state.

SUMMARY

A review of the literature, and the experience in Alaska, would seem to demonstrate that regardless of warming method, good results are had if the management included delineation of the immediate problem, immediate control of the patient's rescue environment, a thorough but rapid physical examination, and evaluation of the physiological state of the victim. Once under 'total physiological control' (monitoring heart, blood gases, electrolytes, and airway, with thorough evaluation of the patient as in any emergency) then warming by the most effective, familiar method is begun. There is reason to believe that the method of warming and even the depth of hypothermia to the level of 70-75°F. (21.1°-23.8° C.) is no more important, if as much, than having total physiological control of the patient. Many methods now in controversy would demonstrate better results if prior to warming effort was made to have complete control of the blood gases, pH, electrolytes, associated injury, and to begin correction of all deficits, particularly dehydration and hypovolemia and renal impairment.

Warming by any of our numerous modalities is critical to restoration of normothermia and preservation of life. Prior to warming, while the patient is in the 'metabolic icebox', still alive, there is time before choosing the heating method, to place the patient under total physiological control. Once that is done, warming methods, simple or complex, may then only be a function of time, not a matter of life or death. Such an approach permits any area at any time to provide care for the victim of hypothermia regardless of the available warming modes.

It is considered essential then, that prior to choosing the method of heating (warming), that time must be allotted (and in the very cold victim, for awhile safe in a 'metabolic icebox state') to diligently search for a.) the cause of hypothermia, b.) and all underlying factors that might prohibit an adequate result, and further c.) to perform total physical, chemical and physiological analysis of the patient's condition.

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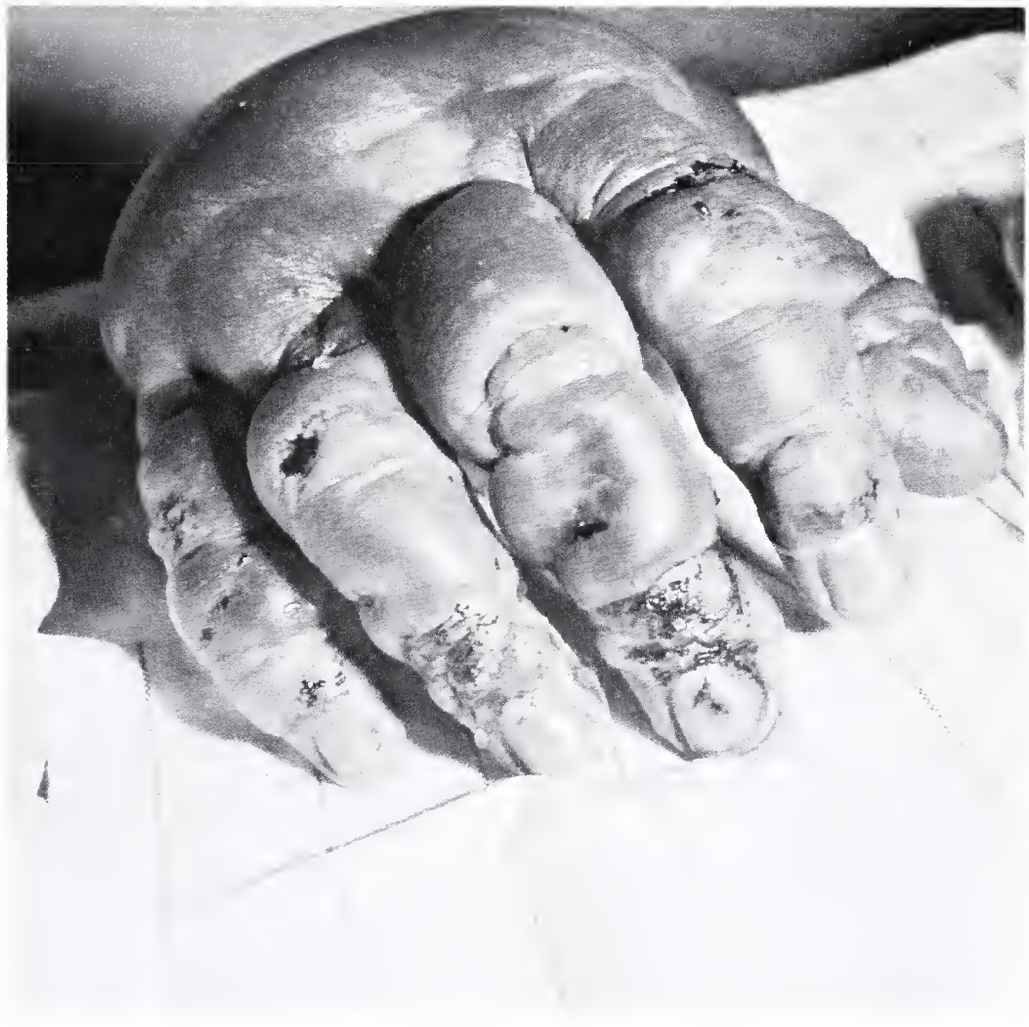
SUMMARY OF TREATMENT OF THE COLD INJURED PATIENT

FROSTBITE

William J. Mills Jr., M.D.
Dept. of High Latitude Study
University of Alaska, Anchorage



The Initial Management of Thermal Injuries
The University of Alaska
and
Providence Hospital
Anchorage, Alaska
March 11, 12, 13, 1983

FROSTBITE

Frostbite is true tissue freezing and occurs when there is sufficient heat loss in the local area to allow ice crystals to form in the extracellular spaces, and extract cellular water.

Freezing injury, as found in Alaska, occurs by the following mechanism:

1. True frostbite: Superficial or deep.
2. Mixed injury: Immersion injury, (wet cold injury) followed by freezing, usually disastrous and often quite painful.
3. Freezing, thawing by any means, with refreezing; again generally disastrous in result, with total tissue destruction and early mummification of distal tissues occuring within five days.
4. Hypoxia, high altitude environment injury, often with dehydration of tissues, due to general body dehydration and hypovolemia with extremity freezing. (Prognosis poor, especially if associated with compartment pressure syndrome.)
5. Extremity compartment compression, from any cause, followed by freezing. (Very poor results if compartment pressures are not relieved by fasciotomy.)
6. Extremity fracture or dislocation and superimposed freezing. The results are poor if the fracture or the dislocation is left unreduced. Best results apear to follow rapid rewarming techniques.
7. Hypothermia, associated with superimposed freezing injury of extremities. Paramount importance is given the restoration of heat to the victim, under total physiological control and monitoring. Best results for freezing injury appear to be associated with tub rewarming of the hypothermia and simultaneous thawing in warm water of the frozen extremity. The danger here is the sudden release of metabolites and release of excess amounts of potassium from muscle degradation and injury that may cause cardioplegia. The immediate balance of electrolytes and restoration of normal pH levels is imperative. The very excellent method of rewarming with peritoneal dialysis may require almost simultaneous warming by other means of the frozen extremity.

Present knowledge would indicate that the pathophysiological changes occur in two stages. First are changes occurring in and induced by the freezing state, namely, 1. Structural damage by ice crystal growth, 2. Protein denaturation, 3. pH changes (inter- and extracellular), 4. Dehydration within cells, 5. Loss of protein bound water, 6. Rupture of cell membranes, 7. Abnormal cell wall permeability, 8. Destruction of essential enzymes, 9. Ultra-structural damage to capillaries, 10. Consistent mitochondrial damage in muscle cells. During the thaw and post thaw stage, the changes may include 1. Circulatory stasis, 2. Corpuscular aggregation, 3. Venule obstruction, 4. Piling of red cells back to capillary bed, 5. Development of hyaline plugs in the vascular tree, 6. Marked tissue edema, 7. Anoxia-ischemia of tissues, 8. Increased compartment space pressure, 9. Capillary and peripheral vessel collapse with eventually, if the process is not reversed, 10. Thrombosis, ischemia, regional necrosis, and tissue death.

In order of prognosis, from best to worst, methods of thawing are:

1. Rapid rewarming in water (100 to 106°F. — 37.7 to 41.1°C.)
2. Gradual thawing at room temperature (the problem here is the variable room temperature between that of an average heated home to that of a cool cabin in the wilderness).
3. Delayed thawing or thawing with ice and snow techniques.
4. Thawing by excessive heat (120°F. or higher).

At present, rapid rewarming is favored, this method seeming to demonstrate the greatest tissue preservation and the most adequate early function especially in deep injury. Results by gradual thawing vary in deep injury, but seem satisfactory in the superficial injury patients. Ice and snow thawing gives variable results, most often poor, with marked loss of tissue. The use of excessive heat as a thawing method has resulted in disaster in most cases, especially with dry heat at temperatures of 150 to 180°F. (66 to 82°C.)(as the use of diesel exhaust, wood fire, stove heat).

Much controversy exists regarding thawing methods, both here in North America and in Europe. From over 800 cases of freezing injury and 80 cases of hypothermia, some conclusions may be drawn.

A. Thawing by excessive heat or by ice and snow and friction massage techniques usually yields poor results.
B. Spontaneous thawing permits variable results and those results are often determined by the depth of injury, the duration of freezing and the patient's activity during survival and rescue and thawing.
C. Rapid rewarming by external means appears to provide better results, but without question does not always give protection from tissue loss, especially in deep or long duration injury.
D. It has been stated that rapid rewarming by internal means (warm intravenous fluids or arterial line fluids) at temperatures of 100-160°F (37.1-41.14°C) is more physiological and may be a method of choice in dissolving ice crystals and restoring cellular hydration. Though this method appears most logical and is a new consideration on the horizon of care, it has, in fact, been a method of choice for over ten years, at least in this area and elsewhere, in the treatment of combined hypothermia and freezing injury, by adding heat and restoring fluid volume with the heated solutions. The

results are still no better than by rapid rewarming methods. In addition, the development of an arterial line, especially in the area of ankle and wrist, may cause local arterial spasm and further decrease digital profusion. The ideal method is obviously not yet at hand (at least for thawing of the frozen part) but the tissue loss is less now than in the past decades, regardless of thawing method. Major above-knee or below-knee amputations or amputation at wrist or forearm level are much fewer in number.

Treatment generally can be divided into two categories:

A. *Before Thawing.* Here the *frozen part must be protected to avoid trauma.* (Is there danger of irreversible injury at the frozen-nonfrozen interface, if motion occurs at that level, fragmenting partially frozen tissues?) should be *thawed in a whirlpool bath or tub water bath* or if nothing else is available, with warm wet packs at *100 to 106°F. (37.7 to 41.1°C.). At Providence Hospital in Anchorage, Alaska, we have since 1963 used a hoist (crane), electrically operated, with the patient lowered into a Hubbard Tub, with whirlpool, full body. This method has also been used for rewarming of the victim of hypothermia, or the warming-thawing of the combined injury, hypothermia, with extremity freezing. Temperatures should not exceed 106°F. or 41.1°C. The thawing is completed when the distal tip of the thawed part flushes. Sedatives or analgesics may be utilized* if the thawing process is painful and cannot be tolerated. *The part should not be massaged. Do not use rapid rewarming if the part has previously been thawed.*

B. *After Thawing.* When injury is severe and deep, and hospitalization is required, *the extremities are kept on sterile sheets, with cradles over the frostbitten extremity to avoid trauma and pressure.* This is not necessary for upper extremities that may be laid out upon sterile sheets over the chest and trunk. *Treatment is open,* not occlusive, without the use of wet dressings, unguents, ointments or petrolatum gauze. *Whirlpool baths are utilized twice daily for 20 minutes* at a time, at temperatures between 90 to 95°F. *Surgical soaps such as hexachlorophene or betadine are utilized in the whirlpool.* Occasionally after Moyer's method for burns, *0.5 percent silver nitrate may be lavaged over the area of frostbite.* The end result is similar to that of the soaps, hexachlorophene and betadine, epithelialization is similar, with one outstanding difference. Pain is less and infection, even superficial, is much less obvious using the silver nitrate solution. *By the use of whirlpool, the debris is cleansed from the part,* and superficial bacteria removed. The tissues are debrided without trauma by the whirlpool action, when they are physiologically prepared to separate viable tissue from the overlying eschar.

Recently one percent Silvadine solution (Silver Sulfadiazine) has been utilized on open wounds secondary to freezing injury when severe drying and premature blood rupture has occurred with apparent superficial infection. Its use occasionally prevents eschar separation apparently by inhibiting proteolytic enzyme bacterial growth.

Generally blebs are left intact since the contents are sterile, as are the underlying tissues. The blebs are debrided or trimmed only if infected and contain purulent material. *Escharotomy should be performed* on the dorsum or lateral aspect of the digits when the eschar is dry and has firmed sufficiently to have a cast effect on the digits, limiting their joint motion. Digits will be debrided further in the whirlpool without prematurely exposing underlying granulation tissues. *Debridement or amputation should be delayed* until sufficient time (often 30 to 90 days) elapses to demonstrate mummification and tissue death with no danger of further retraction of tissues.

In recent years, snow boots with felt liners have been popular. When the extremity(s) is immersed in water or the felt wetted by any means (melted snow) the felt liner may shrink, contract and freeze. Extremity freezing may follow, complicated first by vascular occlusion, the contracted felt liner acting as a tourniquet. Similarly, neoprene or rubber scuba boots used by the mountaineer may cause occlusion of circulation at high altitudes. This is because of pressure changes at lowered atmospheric pressure. Freezing, following this preexisting vascular occlusion, terribly complicates the injury and final result.

If the extremity has remained in a frozen state for some considerable time, even rapid thawing and general supportive care may not be effective in restoring the circulation and a condition similar to anterior tibial compartment syndrome may be demonstrated clinically. *This problem may require fasciotomy.* This condition can be determined either clinically, or by measuring compartment pressures, by the use of arteriography, or injection of isotopes such as technetium 99m.

Isotope studies have been performed as a diagnostic aid of cellular perfusion for over ten years. Doppler ultrasound has been used as a vascular study tool. Interestingly, Thermal Unit patients at Providence Hospital, with evidence of good Doppler pulses in the distal extremities (distal digital vessels) have had conflicting isotope evidence of failure of extremity perfusion in the same area. In all cases but one, the isotope study was the accurate one. Obviously, large digital vessels may for a short while remain patent, even when the deep capillary system is blocked. Failure of sophisticated tools is demonstrated too in the use of devices to measure com-

partment pressure. If your clinical judgement and experience advises that an immediate fasciotomy is required, and the pressure transducer measuring device indicates that the pressure is high but not lethal, or indicates a marginal reading, then often it is better to trust your experience. A later measurement may indicate sudden pressure increase. A delay in performing the fasciotomy may be disastrous. This diagnostic problem may be avoided by the use of continuous pressure monitoring. The pitfalls are many. The monitoring device is still only a machine, and your studied concerned opinion to perform the fasciotomy may preserve the limb.

The use of split thickness skin for large granulating areas or areas where skin cover is considered proper may have skin applied from the third to the fourteenth day. The results of skin graft are best following thawing by rapid rewarming. The pedicle grafting of full thickness skin is a late procedure.

The use of a mesh skin graft at the time of fasciotomy or soon after, decreases the morbidity and lowers the incidence of scarring and infection.

The use of antibiotics is not necessary except in deep infection. Cotton pledgets between digits will prevent maceration of tissues. *Bedside digital exercises* of all the joints are recommended, this done throughout the entire waking day, and *Buerger's exercises for lower extremities are recommended four times daily.* Narcotics generally are not utilized in the uncomplicated cases after initial thawing. Tranquilizers or aspirin will suffice for pain. *In the past, sympathetic blockade, sympathectomy, anticoagulants, vasodilators, alcohol, and enzymes* have not proved particularly effective.

In the past, the use of Hyperbaric Oxygen chamber, single man unit, at two atmospheres of Oxygen appeared to be beneficial in post thaw frostbite therapy. Further evaluation of this adjunct method is planed as a part of the Department of High Latitude Study, University of Alaska, Anchorage.

In patients with apparently equal bilateral injury, however, results of sympathectomy within the first 24 to 48 hours have demonstrated that, while there is no further preservation of tissues, there is:

1. Decrease in pain
2. Marked decrease in edema
3. Much less infection, superficially or deep, and
4. Early and more proximal tissue demarcation

More recently, however, and still in process of evaluation, sympathectomy and vasodilators, and sympathetic blockade have been determined to be of good effect, following fasciotomy. I suspect the previous irregular results often reflected effort to perform effective sympathectomy when the problem may have included regional vascular compartment pressure block. Particularly effective has been the use of Phenoxybenzamine Hydrochloride (Dibenzyline), given 10 mgm. daily and increased to 20 to 60 mgm. per day, depending upon effect and need. The drug is used for vaso spasm and appears to be an effective alpha adrenergic blocking agent. It is important that the patient be well hydrated after surgical or chemical sympathectomy. Pain varies with each individual and with the type of injury, the degree of edema, and the presence or absence of infection. It is lessened by immediate physiotherapy, activity, and whirlpool bath. In severe cases of immersion injury, with edema, prior to fasciotomy, or with high level extremity freezing, post thaw, pain relief is provided with continuous epidural block, for 24 to 48 hours, repeated if necessary. This is especially effective if accompanied by fasciotomy in severe cases with associated increased tissue compartment pressure.

In the past four years, especially in the pre-injury patient with a labile vasomotor peripheral vessel response, biofeedback has been utilized to increase the hand and foot circulation. This has been utilized as well in the post-thaw extremity freezing victim.

New cultural patterns may establish changes in injury. For many years in Alaska freezing of ears, often with tissue loss, especially in children, primarily male, was not uncommon. The injury occurred in skiers, skaters and snowmobilers. With the advent of long neck length hairstyle, frostbite of the ear was seldom seen for almost a decade. With the return of the short hairstyle, the frozen ear pattern is with us again.

Similarly, the running shoe or tennis shoe foot style has permitted freezing. Even in Alaska, coastal or interior areas, regardless of the low temperature, wind or snow depth, Alaskan students (and many adults) risk freezing and nonfreezing injury in inadequate footwear. Their injury toll is almost matched by the cross country skiier competing in low temperatures or backpacking in wilderness areas wearing ultralight low-cut shoes with toe clips.

Alcohol and drug abuse may contribute to hypothermia and freezing injury by impairing mental and physical function. Recently it has become apparent that the nasal "snorting" of cocaine, by causing constriction of mucous membranes and the nasal arterial supply, has allowed serious frostbite of the nose, an area usually so well provided with blood supply that deep injury was considered rare.

Patients are kept in a pleasant environment, not relegated to corners of the hospital because of odor, or tissue necrosis. *The diet is high protein and high caloric,* with vitamin supplements as needed and of your choice. *When considered necessary, antitetanus therapy is recommended,* particularly toxoid booster for those previously immunized. If for any case, amputation must be performed, *a modified guillotine procedure at the lower level* is recommended with secondary closure to be done at a later date. Superficial or deep infection is often found in the extremity requiring guillotine amputation. Secondary closure after the amputation may be more successful when accompanied by closed suction-irrigation, the irrigation fluid (0.9% Sodium Chloride) flowing at 100 cc per hour, with a flush of 50 cc of an-

tibiotic solution of your choice every hour. Dislocations and fractures pose interesting problems, and the *dislocation particularly should be reduced immediately* after thawing. *The use of traction or trauma or manipulation or open procedures are done seldom* and only then very carefully, in the patient who had extremity fracture prior to his freezing. *The fracture treatment should be conservative* until the post thaw edema is eliminated. It may be that a well-padded plastic mold is the best method of treatment until there is cessation of edema. If open reduction of fractures or dislocations is required, great care must be utilized to avoid further vascular injury. Postoperatively, the operated part in a plastic posterior mold may still undergo whirlpool therapy and active digital exercises. The prognosis of this combined injury is poor because of injury to the regional vascular supply from fracture trauma and then the added insult of superimposed freezing injury. *It is here also that fasciotomy may be required to* relieve the deep structure pressures. Fluids are encouraged, dehydration is to be avoided and electrolyte balance maintained. *Smoking is discouraged;* alcohol may be permitted.

The above is a basic program to which you may add any other therapy of choice including low molecular weight, Dextran, vasodilators, anticoagulants, hypotensive agents, sympatholytic drugs, and thrombolytic agents. Despite the best intended treatment, regardless of thawing method, indicated drugs or surgical care, some results are unexplained disasters. The poor result may be due to extended depth and duration of freezing, repetitive freeze-thaw-refreeze injury, underlying circulatory deficit or other cause. The post injury state may demonstrate 1. Freezing injury with post thaw vasoconstriction, 2. Freezing injury with arterial-venous-capillary thrombosis, and 3. Severe cellular destruction as a result of the freezing. Knowing the choices above will help choose the proper drug therapy. Anticoagulants (heparin), vasodilators (priscoline) or hypotensive adrenergic blocking agents (Guanethidine, Reserpine), including sympatholytic drugs (Dibenzyline) may aid in the initial phase of care especially in the absence of deep thrombosis. The plasma volume expander, Low Molecular Weight Dextran, used early, is thought to prevent, diminish, or reverse red cell aggregation in the capillary tree. For deep occlusive thrombus formation, the use of thrombolytic enzymes, Streptokinase and Orokinase, are being evaluated. The risk of hemorrhage and lysis of fresh fibrin, may limit the use of these drugs with associated trauma, especially head injury where a Cerebral Vascular bleed may be of concern. The use of these drugs then may require special local and regional techniques. For the problem of severe or total cellular destruction, there is at the moment little help.

The cartilaginous structures in children, particularly the epiphyseal plates and non-ossified carpal and tarsal bodies are susceptible to cold insult and injury. Total necrosis of those organs is rapid and at present, regardless of methods of thawing and post thawing care, the injury is apprently irreversible.

It has become apparent that from a review of many cases, the following should be considered.

1. Do not attempt thawing where there is danger of refreezing the injured part.
2. There is probably tissue damage that occurs at the level of the nonfrozen-frozen interface in the process of survival, rescue or early extremity handing during treatment.
3. As one major aspect of etiology, it would appear that the onset of hypothermia and frostbite may be result of general overall dehydration and hypovalemia, resulting in further local distal tissue dehydration.
4. It, again, is noted that often the major disasters occur when the individual has often self-treated the extremities by an extreme of thawing temperature, using excessive heat as campfire, diesel exhaust or oven heat. When there is failure of adequate hydration following injury, results are poor. If there is failure to recognize increased compartment tissue space pressures and relieve them, arterial access to the injured part, and venous return is made difficult, if not impossible.
5. All the above problems may assume little importance when one considers that the thawing method is often out of the hand of rescue worker or attending physician since a large number of patients brought to Emergency Room areas or major hospital areas have already had thawing occur, either deliberately by their own methods or inadvertently in the process of awaiting rescue or during rescue procedures. This, then, makes most important the post-thawing techniques and care.

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Indications: Management of anxiety disorders, or short-term relief of symptoms of anxiety. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic. Symptomatic relief of acute agitation, tremor, impending or acute delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in: relief of skeletal muscle spasm due to reflex spasm to local pathology; spasticity caused by upper motor neuron disorders; athetosis; stiff-man syndrome. *Oral forms* may be used adjunctively in convulsive disorders, but not as sole therapy. *Injectable form* may also be used adjunctively in: status epilepticus; severe recurrent seizures; tetanus; anxiety, tension or acute stress reactions prior to endoscopic/surgical procedures; cardioversion.

The effectiveness of diazepam in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

Contraindications: Tablets or capsules in children under 6 months of age; known hypersensitivity; acute narrow angle glaucoma, may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: As with most CNS-acting drugs, caution against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals (drug addicts or alcoholics) under careful surveillance because of predisposition to habituation/dependence.

> ***Usage in Pregnancy:*** **Use of minor tranquilizers during first trimester should almost always be avoided because their use is rarely a matter of urgency and because of increased risk of congenital malformations, as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.**

ORAL: Advise patients against simultaneous ingestion of alcohol and other CNS depressants.

Not of value in treatment of psychotic patients; should not be employed in lieu of appropriate treatment. When using oral forms adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increase in dosage of standard anticonvulsant medication; abrupt withdrawal in such cases may be associated with temporary increase in frequency and/or severity of seizures.

INJECTABLE: *To reduce the possibility of venous thrombosis, phlebitis, local irritation, swelling and, rarely, vascular impairment when used I.V.: inject slowly, taking at least one minute for each 5 mg (1 ml) given; do not use small veins,* i.e., *dorsum of hand or wrist, use extreme care to avoid intra-arterial administration or extravasation. Do not mix or dilute with other solutions or drugs in syringe or infusion flask. If it is not feasible to administer Injectable Valium directly I.V., it may be injected slowly through the infusion tubing as close as possible to the vein insertion.*

Administer with extreme care to elderly, very ill, those with limited pulmonary reserve because of possibility of apnea and/or cardiac arrest; concomitant use of barbiturates, alcohol or other CNS depressants increases depression with increased risk of apnea; have resuscitative facilities available. When used with narcotic analgesic eliminate or reduce narcotic dosage at least 1/3, administer in small increments. Should not be administered to patients in shock, coma, acute alcoholic intoxication with depression of vital signs.

Has precipitated tonic status epilepticus in patients treated for petit mal status or petit mal variant status. Not recommended for OB use.

Efficacy/safety not established in neonates (age 30 days or less); prolonged CNS depression observed. In children, give slowly (up to 0.25 mg/kg over 3 minutes) to avoid apnea or prolonged somnolence; can be repeated after 15 to 30 minutes. If no relief after third administration, appropriate adjunctive therapy is recommended.

Precautions: If combined with other psychotropics or anticonvulsants, carefully consider individual pharmacologic effects—particularly with known compounds which may potentiate action of diazepam, *i.e.*, phenothiazines, narcotics, barbiturates, MAO inhibitors and antidepressants. Protective measures indicated in highly anxious patients with accompanying depression who may have suicidal tendencies. Observe usual precautions in impaired hepatic function; avoid accumulation in patients with compromised kidney function. Limit oral dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation (initially 2 to 2½ mg once or twice daily, increasing gradually as needed and tolerated).

The clearance of diazepam and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

INJECTABLE: Although promptly controlled, seizures may return; readminister if necessary; not recommended for long-term maintenance therapy. Laryngospasm/increased cough reflex are possible during peroral endoscopic procedures; use topical anesthetic, have necessary countermeasures available. Hypotension or muscular weakness possible, particularly when used with narcotics, barbiturates or alcohol. Use lower doses (2 to 5 mg) for elderly/debilitated.

Adverse Reactions: Side effects most commonly reported were drowsiness, fatigue, ataxia. Infrequently encountered were confusion, constipation, depression, diplopia, dysarthria, headache, hypotension, incontinence, jaundice, changes in libido, nausea, changes in salivation, skin rash, slurred speech, tremor, urinary retention, vertigo, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances and stimulation have been reported; should these occur, discontinue drug.

Because of isolated reports of neutropenia and jaundice, periodic blood counts, liver function tests advisable during long-term therapy. Minor changes in EEG patterns, usually low-voltage fast activity, observed in patients during and after diazepam therapy are of no known significance.

INJECTABLE: Venous thrombosis/phlebitis at injection site, hypoactivity, syncope, bradycardia, cardiovascular collapse, nystagmus, urticaria, hiccups, neutropenia.

In peroral endoscopic procedures, coughing, depressed respiration, dyspnea, hyperventilation, laryngospasm/pain in throat or chest have been reported.

Dosage: Individualize for maximum beneficial effect.

ORAL: *Adults:* Anxiety disorders, relief of symptoms of anxiety—Valium (diazepam/Roche) tablets, 2 to 10 mg b.i.d. to q.i.d.; or 1 or 2 Valrelease capsules (15 to 30 mg) daily. Acute alcohol withdrawal—tablets, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; or 2 capsules (30 mg) the first 24 hours, then 1 capsule (15 mg) daily as needed. Adjunctively in skeletal muscle spasm—tablets, 2 to 10 mg t.i.d. or q.i.d.; or 1 or 2 capsules (15 to 30 mg) once daily. Adjunctively in convulsive disorders—tablets, 2 to 10 mg b.i.d. to q.i.d.; or 1 or 2 capsules (15 to 30 mg) once daily.

Geriatric or debilitated patients: Tablets—2 to 2½ mg 1 or 2 times daily initially, increasing as needed and tolerated (see Precautions). Capsules—1 capsule (15 mg) daily when 5 mg oral Valium has been determined as the optimal daily dose.

Children: Tablets—1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use in children under 6 months). Capsules—1 capsule (15 mg) daily when 5 mg oral Valium has been determined as the optimal daily dose (not for use in children under 6 months).

INJECTABLE: Usual initial dose in older children and adults is 2 to 20 mg I.M. or I.V., depending on indication and severity. Larger doses may be required in some conditions (tetanus). In acute conditions injection may be repeated within 1 hour, although interval of 3 to 4 hours is usually satisfactory. Lower doses (usually 2 to 5 mg) with slow dosage increase for elderly or debilitated patients and when sedative drugs are added. (See Warnings and Adverse Reactions.)

For dosages in infants and children see below; have resuscitative facilities available.

I.M. use: by deep injection into the muscle.

I.V. use: inject slowly, take at least one minute for each 5 mg (1 ml) given. Do not use small veins, i.e., *dorsum of hand or wrist. Use extreme care to avoid intra-arterial administration or extravasation. Do not mix or dilute Valium with other solutions or drugs in syringe or infusion flask. If it is not feasible to administer Valium directly I.V., it may be injected slowly through the infusion tubing as close as possible to the vein insertion.*

Moderate anxiety disorders and symptoms of anxiety, 2 to 5 mg I.M. or I.V., and severe anxiety disorders and symptoms of anxiety, 5 to 10 mg I.M. or I.V., repeat in 3 to 4 hours if necessary; acute alcohol withdrawal, 10 mg I.M. or I.V. initially, then 5 to 10 mg in 3 to 4 hours if necessary. Muscle spasm, in adults, 5 to 10 mg I.M. or I.V. initially, then 5 to 10 mg in 3 to 4 hours if necessary (tetanus may require larger doses); in children *administer I.V. slowly*; for tetanus in infants over 30 days of age, 1 to 2 mg I.M. or I.V., repeat every 3 to 4 hours if necessary; in children 5 years or older, 5 to 10 mg repeated every 3 to 4 hours as needed. Respiratory assistance should be available.

Status epilepticus, severe recurrent convulsive seizures (I.V. route preferred), 5 to 10 mg adult dose administered slowly, repeat at 10- to 15-minute intervals up to 30 mg maximum. Repeat in 2 to 4 hours if necessary, keeping in mind possibility of residual active metabolites. Use caution in presence of chronic lung disease or unstable cardiovascular status. Infants (over 30 days) and children (under 5 years), 0.2 to 0.5 mg slowly every 2 to 5 min., up to 5 mg (I.V. preferred). Children 5 years plus, 1 mg every 2 to 5 min., up to 10 mg (slow I.V. preferred); repeat in 2 to 4 hours if needed. EEG monitoring may be helpful.

In endoscopic procedures, titrate I.V. dosage to desired sedative response, generally 10 mg or less but up to 20 mg (if narcotics are omitted) immediately prior to procedure; if I.V. cannot be used, 5 to 10 mg I.M. approximately 30 minutes prior to procedure. As preoperative medication, 10 mg I.M.; in cardioversion, 5 to 15 mg I.V. within 5 to 10 minutes prior to procedure. Once acute symptomatology has been properly controlled with injectable form, patient may be placed on oral form if further treatment is required.

Management of Overdosage: Manifestations include somnolence, confusion, coma, diminished reflexes. Monitor respiration, pulse, blood pressure; employ general supportive measures, I.V. fluids, adequate airway. Use levarterenol or metaraminol for hypotension. Dialysis is of limited value.

How Supplied:

ORAL: Valium scored tablets—2 mg, white; 5 mg, yellow; 10 mg, blue—bottles of 100 and 500; Prescription Paks of 50, available in trays of 10; Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25 and in boxes containing 10 strips of 10.

Valrelease (diazepam/Roche) slow-release capsules—15 mg (yellow and blue), bottles of 100; Prescription Paks of 30.

INJECTABLE: Ampuls, 2 ml, boxes of 10; Vials, 10 ml, boxes of 1; Tel-E-Ject® (disposable syringes), 2 ml, boxes of 10. Each ml contains 5 mg diazepam, compounded with 40% propylene glycol, 10% ethyl alcohol, 5% sodium benzoate and benzoic acid as buffers, and 1.5% benzyl alcohol as preservative.

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VIOLENCE ON ANCHORAGE'S 4TH AVENUE FROM THE PERSPECTIVE OF STREET PEOPLE

Michael Huelsman

Abstract

Fifty-four Anchorage street people were surveyed in order to gain more accurate knowledge of the level of victimization and violence experienced by the residents of Anchorage's skid row. The population studied is primarily Native Alaskan males. The age group is younger than urban skid rows in the Lower 48 and has significantly more female members.

On the average, the respondents were victims of a violent crime once every two months with the crime being reported to the police only 16% of the time. In 38% of the incidents, the victim was taken to a hospital. Assault was reported most often (65% of respondents were assaulted in the last six months), followed by robbery (30% were robbed in the last six months). Females were most often victims of other forms of violence, predominantly rape and domestic violence.

Most frequent respondent's suggestions for improvements included: 1) more police (33%), 2) police foot patrol in the 4th Avenue area (15%), 3) increased social services (13%) and, 4) close, disperse, or limit hours of liquor establishments (11%).

Introduction - Statement of the Problem

Victimization is a frequent problem for all skid row dwellers. Blumberg notes that "strong arm robbery and stealing from drunken men are common, especially during the first several days after pension and welfare checks arrive." (1) Most of the inhabitants are essentially homeless and must carry their money with them. A man sleeping in the open is an easy victim for assailants. (2)

Women are especially vulnerable. Blumberg again notes that "skid row is a dangerous place for women, perhaps more so than men. The men are beaten up and jackrolled (robbed) and the women are too, but in addition, it is our impression that the skid row women have been raped three or four times over the course of their years. Their damaged faces and broken noses show the effects of beatings." (3) Indications are that the same is true in Anchorage.

Testimony at the Beyond 4th Avenue Conference noted that "parasites" come to the 4th Avenue area to rob the unwary. This conference, sponsored by the Anchorage Health Department was held in January 1981. It studied the problems of Anchorage's skid row and made recommendations.

Overall there is a feeling of apathy, a feeling that nothing can be done to prevent the violence. In short skid row is a victimized commuity too powerless to organize and demand better police protection. (4)

Purpose of the Study

To gain more accurate knowledge of the level of victimization and violence experienced by the inhabitants of Anchorage's 4th Avenue skid row.

Methodology - Sample

The subjects interviewed for the study were selected from four sources:

1) Bean's Cafe, a social agency used by most of the street people of Anchorage. The agency offers a lunch daily and a place to warm up and rest. Twenty-one subjects were interviewed at Bean's Cafe.
2) Salvation Army Adult Rehabilitation Center. Eleven of approximately 40 people currently residing at this agency were interviewed. All are thought to have been living on 4th Avenue within the last 2 months.
3) Clitheroe Center Detoxification. This program offers up to 5 days of modified medical detoxification and is frequently used by inhabitants of the 4th Avenue area. Detoxification clients who were not

part of the target population of this study were not interviewed. Ten subjects were interviewed at Clitheroe Center Detoxification.

4) Clitheroe Center Residential Treatment Program. This program provides alcoholism treatment services to many of the inhabitants of the 4th Avenue area as well as other populations. All 12 of the clients interviewed had recently been inhabiting the 4th Avenue area.

The total of 54 respondents can be divided into 3 groups:

1) those currently living on the street or with friends or relatives (21)
2) those currently in a short-term detoxification program (10)
3) those currently in a medium to long-term residential program (23)

There is some similarity between these groups and two of the three sub-groups indentified by Kelso's "A Descriptive Analysis of the Downtown Anchorage Skid row population 1978" (5) which are shown in Table 1. This study did not include interviews of subjects living in residences in the area. This probably means the sample had fewer Caucausians and fewer employed people than the Kelso Study.

TABLE 1

Kelso's Survey Sub-Groups	Agency	Street	Residential
Violence Study Sub-Groups	Salvation Army Adult Rehabilitation Center	Bean's	None
	Clitheroe Center Residential and Detoxification Components		

It is estimated that 1/3 to 1/2 of the target population of street people were surveyed.

Survey Instrument

The survey instrument was developed through the use of a key informant who was part of the survey population as well as social agency staff who work with the survey population. The instrument was pretested at Bean's Cafe by Bean's Cafe staff. There was a mixed format of 37 questions including multiple choice, yes, no, and open ended type questions. A copy of the survey instrument can be found in Appendix II.

Interviewers

Two interviewers were used for the effort. Both had experience working with or being part of the 4th Avenue population. Periodic monitoring was done by the author.

Data Collected

The survey was administered between September 30 and October 6, 1982. Populations were selected at random and respondents were given the opportunity not to participate. Several potential respondents (about 20%) chose not to participate. Key informants suggest this is because, 1) there is a great deal of apathy among the target population with no direct incentive being offered to the respondents and therefore some would choose not to participate, and 2) some potential respondents found it embarrassing to discuss the fact that they were victims of violence and preferred not to participate.

It is felt that if there was a bias by this self-selection it would tend to cause less violence to be reported in the survey than that actually occurring.

Results - Overall Sample Description

The general characteristics of age, sex, physical size, ethnicity, and employment status are presented in Table 2. The modal age of mid 30's is younger than that found in urban samples (late 40's). (5) The age patterns are consistent with what was found in Kelso's 4th Avenue Study. Ages ranged from 15 to 77. The mean age was 36.6.

Also consistent with Kelso's findings, women were a significant part of the population. Women are found in much lower numbers in other skid row studies.

Because key informants felt the physical size of respondents might have a bearing on the amount of violence experienced, this characteristic was included in the survey. Causasians tended to be larger and Eskimo/Aleuts tended to be smaller in size.

TABLE 2
SAMPLE CHARACTERISTICS

		Percent
Age:	Less than 18 years	2
	18 - 25 years	16
	26 - 35 years	38
	36 - 45 years	19
	More than 45 years	25
Sex:	Male	76
	Female	24
Physical Size:	Big	29
	Medium	41
	Small	31
Ethnicity:	Eskimo/Aleut	63
	American Indian	4
	Black	0
	Alaskan Indian	11
	Caucasian	20
	Other	2
Employment Status:	Employed Full-Time	4
	Employed Part-Time	9
	Retired/Disabled	4
	Not Employed	31
	Unemployed (Seeking Work)	52
Alcohol Abusers:	Yes	86
	No	14

While other urban skid rows contain a significant minority of Indian group members, this survey evidenced a considerably higher number. Kelso's survey found the population to be 57% Native and Minority members and about 40% Caucasians.(5) This survey found about 80% Native and Minority members and 20% Caucasians. Table 3 compares the ethnic breakdown of the two surveys. Kelso's Eskimo and Aleut groups were combined and the Violence survey groups of American Indian and Alaskan Indian were combined to facilitate this comparison.

TABLE 3

COMPARISON OF ETHNICITY GROUP COMPOSITION

OF KELSO STUDY AND VIOLENCE SURVEY

	Kelso Study	Violence Survey
Caucasians	40%	20%
Eskimo/Aleut	37%	63%
Indian	21%	15%
Black	3%	0%
Other	1%	2%

The differences in the number of Caucasians can be explained by Survey Methodology as the Violence Survey did not interview residents living in the area. Kelso found the residential group to have a greater number of Caucasians.

The reasons for the greater number of Eskimos and Aleuts is unknown. However the data suggests the Alaskan Natives constitute a larger proportion of the ethnic makeup of the 4th Avenue street person than previously thought.

Over 80% of the respondents were unemployed, 31% of the total were not seeking work while 52% were seeking employment. Of those employed most were employed part-time primarily making and selling crafts.

Almost all of those surveyed were felt by key informants and surveyors to be alcohol abusers (86%). Very few were drug abusers (8%).

Frequency and Description of Violent Crime - Robbery

Thirty percent reported that they were robbed in the last six months. Of those robbed, 53% had been robbed once and the balance two to four times. A total of 24 robberies were committed on the 54 respondents to the survey. The value of what was stolen was between $5 and $2,500 with the average being $266.

Assault

Sixty-five percent of the survey subjects reported having been assaulted within the last six months. Thirty-eight percent reported one assault and the balance from 2 to 25 assaults. The 54 respondents reported a total of 112 assaults. Fifty-three percent of victims needed some kind of medical care in the most recent incident to occur. Thirty-eight percent of all victims received treatment in a hospital.

Other Types of Violence

Seventeen percent of the respondents reported experiencing another kind of violence. Most frequently reported was rape (4); followed by domestic violence (3); police brutality (2); and child abuse (1). All respondents were women except for one male that reported police brutality. Both surveyors were male and because of possible embarrassment by the subject, there may bave been some under-reporting. About half of the incidents occurred once in the last six months with the balance occurring 2 to 6 times. A total of 20 violent incidents were reported in this category.

Characteristics of the Incidents

A total of 156 violent incidents were reported for an average of 2.9 per person. This is an average of one violent incident every 63 days per person. Respondents report that in only 25 or 16% of these incidents the police were notified.

Seventy percent of the crimes are committed during the night. Most of the daytime crimes committed were assaults. This is in keeping with the opinions of key informants. In 35% of the victim's most recent incidents the perpetrator was one person. In 43% of the incidents, there were 2. In 22% of the incidents there were 3 to 5 perpetrators involved.

In 44% of the most recent incidents a weapon was involved. In incidents where a weapon was used, it most frequently (47%) was a club, bottle or rock. This was followed by knives (27%) and guns (20%). Sixty-seven percent of the time the assailant was drinking, 23% of the time he was not, and 10% of the time the victim did not know.

Most frequently the assailant was Caucasian (29%). This was followed by Eskimo/Aleut (24%), Indian (21%), Black (13%), and a combination of more than one ethnic group (13%). A large proportion of the assaults were committed by Alaskan Natives on Alaskan Natives. Other crimes tended to have Alaskan Native victims and other than Native offenders.

The crime most often occurred on streets (39%) followed by in or outside of bars (28%), in parks or open space (20%), and alleys (6%). Over half of the crimes (57%) occurred in the immediate 4th Avenue area, that is, between A and D Streets and 3rd and 6th Avenues, a relatively small area of twelve square blocks. Thirty-one percent occurred in downtown Anchorage but not in the 4th Avenue vicinity.

Suggestions for Improvement

Respondents were asked for suggestions that will increase their safety; usually one or two suggestions were made. All suggestions were given equal rank. Most of the responces involved the police (62%). Thirteen percent of the suggestions related to increasing social services and 11% were related to liquor outlets.

Of the suggestions involving police, 1/3 of the total suggestions were for more police. This was followed by increased foot patrolling of the 4th Avenue area (15%), use of more undercover police (7%), and improving police effectiveness (7%).

Respondents also suggested that social services be increased especially an agency where they could drop-in and be off the streets. The respondents that made suggestions regarding liquor outlets usually suggested closing down or dispersing the bars; there also were suggestions of shorter bar hours and better enforcement of liquor laws. Some also wanted longer jail sentences for those convicted of violent crimes. Alaskan Natives tended to ask for more police protection while Caucasians were more interested in increasing social service and more control over the dispensing

of alcoholic beverages.

Summary

The survey indicates that a great deal of violence occurs in Anchorage's downtown skid row and that the victim rarely reports this violence to police. There is a need for greater police protection for the street people of Anchorage especially in the skid row area.

APPENDIX I
PERCENTAGE OF DISTRIBUTION OF RESPONSES

1. **Age:**
   - Less than 18 years 2%
   - 18-25 years 16%
   - 26-35 years 38%
   - 36-45 years 19%
   - More than 45 ..... 25%

2. **Sex:**
   - Males 76%
   - Females 24%

3. **Physical Size:**
   - Big 29%
   - Medium 41%
   - Small 31%

4. **Ethnicity:**
   1. **63%** Eskimo/Aleut
   2. **4%** American Indian
   3. **0%** Black
   4. **11%** Alaskan Indian
   5. **20%** Caucasian
   6. **2%** Other

5. **Status:**
   1. **4%** Employed Full-Time
   2. **9%** Employed Part-Time
   5. **4%** Retired/Disabled, Unemployable
   6. **31%** Not Employed
   7. **52%** Unemployed (seeking work)

6. **Principal Income Source:**
   1. **9%** Unemployment
   2. **11%** Job
   3. **4%** Savings
   4. **54%** None
   5. **7%** Welfare
   6. **7%** Social Security
   7. **6%** Other

7. **Where did you sleep last night?**
   1. Street 9%
   2. Sally ARC/Rescue Mission 21%
   3. Friends/Relatives 17%
   4. Campsites 11%
   5. Detoxification 19%
   6. Residential Treatment 22%

8. **Alcohol Abuser:**
   - Yes 86%
   - No 14%

9. **Drug Abuser:**
   - Yes 8%
   - No 92%

10. **Has anyone forced you to give up what you owned during the last six months?**
    - Yes 30%
    - No 70%

    Number of times in the last six months someone tried or succeeded.
    1X 54%; 2X 23%; 3X 8%; 4X 15%

11. **Have you ever gotten hurt by someone but not robbed?**
    - Yes 65%
    - No 35%

    Number of times in the last six months that this has happened.
    1X 38%; 2X 20%; 3X 14%; 4X 14%; 7 or more X 11%

12. **Have you been the victim of any other type of violence?**
    - Yes 17%
    - No 83%

    Number of times in the last six months this has happened?
    1X 56%; 2X 22%; 5X 11%; 6X 11%

13. **Number of times the police were notified.**
    0X 51%; 1X 35%; 2X 8%; 3X 5%

14. **What do you think should be done so that you will be safer?**
    - Foot patrol 15%
    - More Police 33%
    - Undercover Police 7%
    - Improve Police 7%
    - Close Bars 11%
    - Stiffer Jail Sentences 7%
    - Social Service 13%
    - Other 9%

15. **Type of Most Recent Violence:**
    - Robbery 1 ..... 38%
    - Assault 2 ..... 56%
    - Other 3 ..... 5%

16. **When did incident happen?**
    - Arpil 5.9%
    - May 14.7%
    - June 29.4%
    - July 8.8%
    - August 23.5%
    - September 17.6%

17. **Time Incident Happened:**
    - Day 28%
    - Night 70%

18. **Number of people involved in incident:**
    - 1 Person 35%
    - 2 People 43%
    - 3 People 14%
    - 4 People 5%
    - 5 People 3%

19. **Did they have a weapon?**
    - Yes 1 ..... 44%
    - No 2 ..... 56%

20. **Kind of weapon:**
    - Club, Rock or Bottle 47%
    - Knife 27%
    - Fire Arm 20%
    - Other 7%

21. **Was offender drinking?**
Yes 67%
No 23%

22. **Race of offender:**
1. **24%** Eskimo/Aleut
2. **5%** American Indian
3. **13%** Black
4. **16%** Alaskan Indian
5. **29%** Caucasian
6. **13%** Other (**Combination**)

23. **Where did crime occur?**
Alley 5%
Park Land 19%

24. **Was victim hurt?**
Yes 68%
No 33%

25. **Was victim taken to a hospital?**
Yes 38%
No 62%

26. **Did victim get medical help other than Hospital?**
Yes 15%
No 85%

27. **Did victim lose anything of value?**
Yes 53%
No 48%

28. **Value of stolen goods:**
$ 5 - $ 25 ..... 33%
$ 25 - $ 100 ..... 24%
$ 100 + ... 43%

29. **Source of money taken:**
Land Claims 11%
Employment 26%
Welfare 5%
Social Security 16%
Other 21%
No Money Taken 21%

30. **When you are on the street, do you carry a weapon?**
Yes 3%
No 97%

APPENDIX II
VIOLENCE ON 4TH AVENUE SURVEY

I would like to take a few minutes of your time to ask you some questions about dangers stranded people face while in Anchorage. The information will help us better understand the problems that you face.

Name/or # _____

1. Age _____ # of Years Old
(or approximate age) i.e. 20's, 30's, 40's, 50's, 60+

2. Sex: M F (Circle one)

3. Physical Size:

Big, Medium, Small (Circle one)
(5'11"+) (5'8" - 5'11") (5'7")

4. Ethnicity:
1. _____ Eskimo
2. _____ American Indian
3. _____ Black
4. _____ Alaskan Indian
5. _____ Caucasian
6. _____ Other _____
7. _____ Aleut

5. Employment Status:
1. _____ Employed Full-Time
2. _____ Employed Part-Time
3. _____ Seasonal Employment-In Season
4. _____ Seasonal Employment-Out of Season
5. _____ Retired/Disabled, Unemployable
6. _____ Not Employed
7. _____ Unemployed (seeking work)
8. _____ Other_____
9. _____ Unknown

6. Principal Income Source
1. _____ Unemployment
2. _____ Job
3. _____ Savings
4. _____ None
5. _____ Welfare
6. _____ Social Security
7. _____ Other_____

(If more than one source, circle source that provides the most money.)

7. Where did you sleep last night?
1. Street
2. Sally Arc/Rescue Mission
3. Friends/Relatives
4. Camp-sites
5. Other_____

Assessment by Surveyor

8. Alcohol Abuser: _____ Yes
_____ No
_____ Don't Know

9. Drug Abuser: _____ Yes
_____ No
_____ Don't Know

10. Has anyone forced you to give up what you owned during the last 6 months?
Yes 1. _____ No 2. _____

11. Number of times in the last 6 months someone tried or succeeded. _____

12. Have you ever gotten hurt by someone but not robbed?
    Yes 1. _____ No 2. _____

13. Number of times in the last 6 months that this has happened.
    _____

14. Have you been the victim of any other type of violence?
    Yes _____ No _____ If yes, type _____

15. Number of times in the last 6 months this has happened?
    _____

16. Number of times the police were notified in Questions 10, 12, 14. _____

17. &

18. What do you think should be done so that you will be safer?

Please answer the following questions for the most recent violent incident referred to in the previous page.

19. Incident Type:
    (10) Robbery 1. _____
    (12) Assault 2. _____
    (14) Other 3. _____

I. **When did it happen.**

20. Month it occurred
    _____

21. Time of Day _____ Day
    _____ Night

II. **Describe who did it.**

22. Number of people _____

23. Did they have a weapon? Yes 1. _____
    No 2. _____

24. Kind of weapon
    1. Rock, Club or Bottle
    2. Knife
    3. Firearm
    4. Other _____

25. Had they been drinking? Yes 1. _____
    No 2. _____

26. Race of offender
    1. _____ Eskimo
    2. _____ American Indian
    3. _____ Black
    4. _____ Alaskan Indian
    5. _____ Caucasian
    6. _____ Other _____
    7. _____ Aleut

III. **Where did it happen?**
    _____

27. Kind of Place, i.e. Bar, Park, Alley, Street
    _____

28. Address, i.e. Location
    _____

IV. **What happened to you?**

29. Were you hurt? Yes 1. _____ No 2. _____

30. Did you go to hospital? Yes 1. _____ No 2. _____

31. Did you get medical help? (Other than hospital) Yes 1. _____ No 2. _____

32. How long have you been in Anchorage? _____

33. Did you lose anything of value? Yes 1. _____ No 2. _____

34. Value $_____

35. Source of Money taken:
    1. _____ State Dividend
    2. _____ Land Claims
    3. _____ Employment
    4. _____ Welfare
    5. _____ Social Security
    6. _____ Other _____
    7. _____ None

36. When you are on the street do you carry a weapon?
    Yes 1. _____ No 2. _____

Acknowledgement

We would like to thank Bean's Cafe and especially their staff for their support, input and assistance. Also, thanks are due to Salvation Army's Adult Rehabilitation Center and Clitheroe Center for their advice and cooperation.

A special thanks is extended to John Kungesuk who volunteered many hours to this project.

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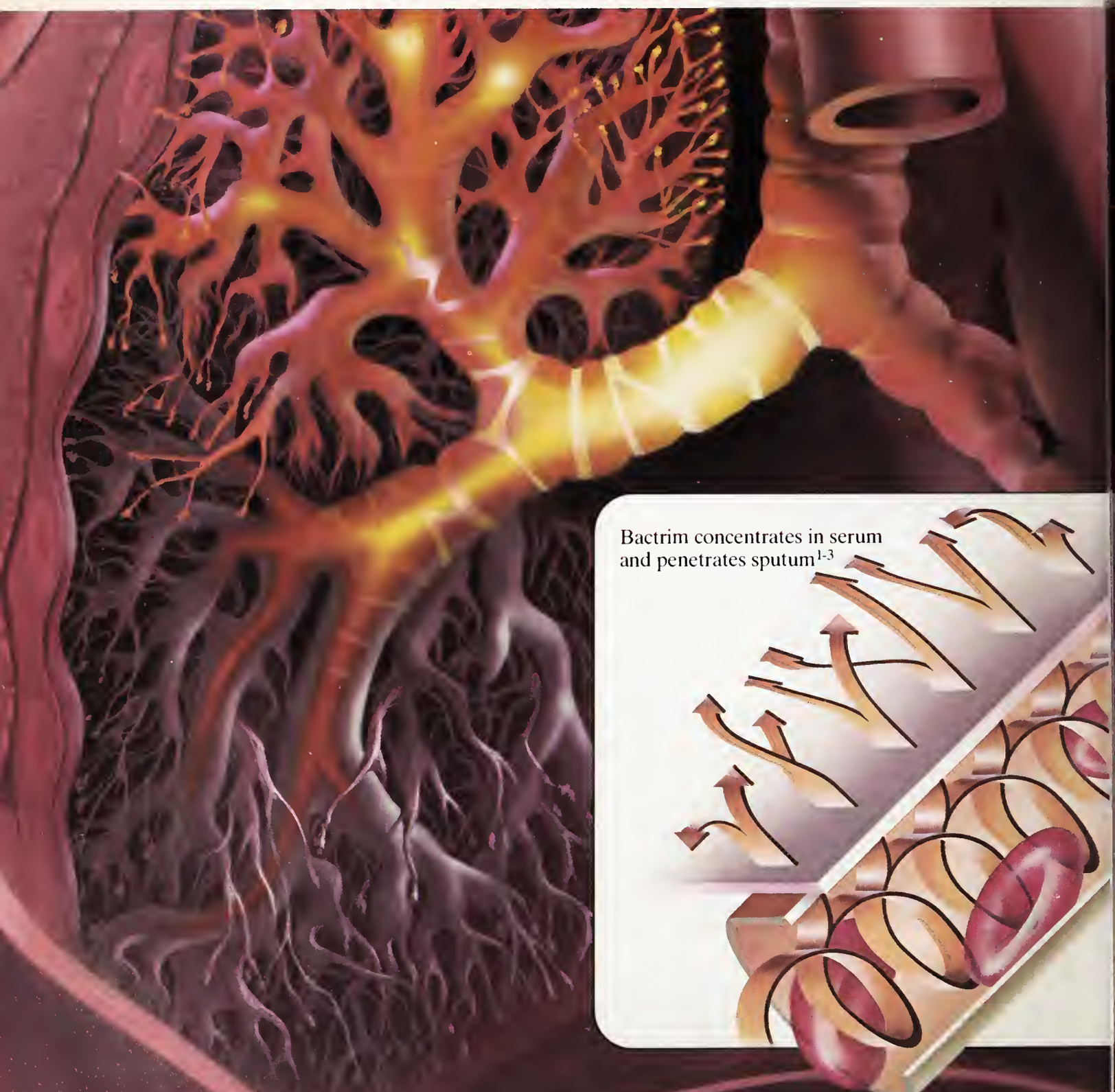

Bactrim concentrates in serum and penetrates sputum[1-3]

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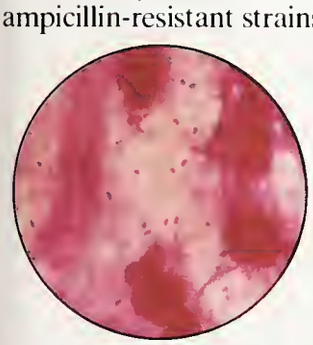
major pathogens of chronic bronchitis*

Bactrim clears sputum of susceptible bacteria

In sputum cultures from patients with acute exacerbations of chronic bronchitis, *H. influenzae* and *S. pneumoniae* are isolated more often than any other pathogens.[4,5] One study of transtracheal aspirates from 76 patients with acute exacerbations found that 80% of the isolates were of these two pathogens.[5]

Bactrim is effective *in vitro* against most strains of both *S. pneumoniae* and *H. influenzae*—even ampicillin-resistant strains. And in acute exacerbations of chronic bronchitis involving these two pathogens, sputum cultures taken seven days after a two-week course of therapy showed that Bactrim eradicated these bacteria in 91% (50 of 55) of the patients treated.[6]

ttacks *H. influenzae*—even ampicillin-resistant strains



attacks *S. pneumoniae*

Bactrim reduces coughing and sputum production

In three double-blind comparisons with ampicillin *q.i.d.*, Bactrim DS proved equally effective on all clinical parameters.[7-9] Bactrim reduced the frequency and severity of coughing, reduced the amount of sputum produced and cleared the sputum of purulence.

Bactrim has the added advantages of *b.i.d.* dosage convenience and a lower incidence of diarrhea than with ampicillin, and it is useful in patients allergic to penicillins.

Bactrim also proved more effective than tetracyclines in 10 clinical trials involving nearly 700 patients.[10] Overall clinical condition of the patients, changes in sputum purulence, reduction in sputum volume and microbiological clearance of pathogens—all improved more with Bactrim therapy than with tetracyclines. G.I. side effects occurred in only 7% of patients treated with Bactrim compared with 12% of tetracycline-treated patients. (See Adverse Reactions in summary of product information on next page.)

Bactrim is contraindicated in pregnancy at term and nursing mothers, infants under two months of age, documented megaloblastic anemia due to folate deficiency and hypersensitivity.

Bactrim DS. For acute exacerbations of chronic bronchitis in adults* when it offers an advantage over single-agent antibacterials.

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(trimethoprim and sulfamethoxazole/Roche)

Before prescribing, please consult complete product information, a summary of which follows:

Indications and Usage: For the treatment of urinary tract infections due to susceptible strains of the following organisms: *Escherichia coli, Klebsiella-Enterobacter, Proteus mirabilis, Proteus vulgaris, Proteus morganii.* It is recommended that initial episodes of uncomplicated urinary tract infections be treated with a single effective antibacterial agent rather than the combination. *Note:* The increasing frequency of resistant organisms limits the usefulness of all antibacterials, especially in these urinary tract infections

For acute otitis media in children due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over other antimicrobials. To date, there are limited data on the safety of repeated use of Bactrim in children under two years of age. Bactrim is not indicated for prophylactic or prolonged administration in otitis media at any age.

For acute exacerbations of chronic bronchitis in adults due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over a single antimicrobial agent.

For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antibacterial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonitis.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age.

Warnings: BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL PHARYNGITIS. Clinical studies show that patients with group A β-hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended; therapy should be discontinued if a significantly reduced count of any formed blood element is noted

Precautions: *General:* Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function. Bactrim may prolong prothrombin time in those receiving warfarin; reassess coagulation time when administering Bactrim to these patients.

Pregnancy: Teratogenic Effects. Pregnancy Category C. Because trimethoprim and sulfamethoxazole may interfere with folic acid metabolism, use during pregnancy only if potential benefits justify the potential risk to the fetus.

Adverse Reactions: All major reactions to sulfonamides and trimethoprim are included, even if not reported with Bactrim. *Blood dyscrasias:* Agranulocytosis, aplastic anemia, megaloblastic anemia, thrombopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia. *Allergic reactions.* Erythema multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis. *Gastrointestinal reactions:* Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, diarrhea, pseudomembranous colitis and pancreatitis. *CNS reactions:* Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness. *Miscellaneous reactions:* Drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies

Dosage: Not recommended for infants less than two months of age.

URINARY TRACT INFECTIONS AND SHIGELLOSIS IN ADULTS AND CHILDREN, AND ACUTE OTITIS MEDIA IN CHILDREN

Adults: Usual adult dosage for urinary tract infections—1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 10-14 days. Use identical daily dosage for 5 days for shigellosis.

Children: Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

For patients with renal impairment. Use recommended dosage regimen when creatinine clearance is above 30 ml/min. If creatinine clearance is between 15 and 30 ml/min, use one-half the usual regimen. Bactrim is not recommended if creatinine clearance is below 15 ml/min.

ACUTE EXACERBATIONS OF CHRONIC BRONCHITIS IN ADULTS

Usual adult dosage. 1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp (20 ml) b.i.d. for 14 days.

PNEUMOCYSTIS CARINII PNEUMONITIS.

Recommended dosage: 20 mg/kg trimethoprim and 100 mg/kg sulfamethoxazole per 24 hours in equal doses every 6 hours for 14 days. See complete product information for suggested children's dosage table

Supplied: *Double Strength (DS) tablets,* each containing 160 mg trimethoprim and 800 mg sulfamethoxazole, bottles of 100, Tel-E-Dose® packages of 100; Prescription Paks of 20 and 28. *Tablets,* each containing 80 mg trimethoprim and 400 mg sulfamethoxazole—bottles of 100 and 500, Tel-E-Dose® packages of 100; Prescription Paks of 40. *Pediatric Suspension,* containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); cherry flavored—bottles of 100 ml and 16 oz (1 pint). *Suspension,* containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); fruit-licorice flavored—bottles of 16 oz (1 pint).

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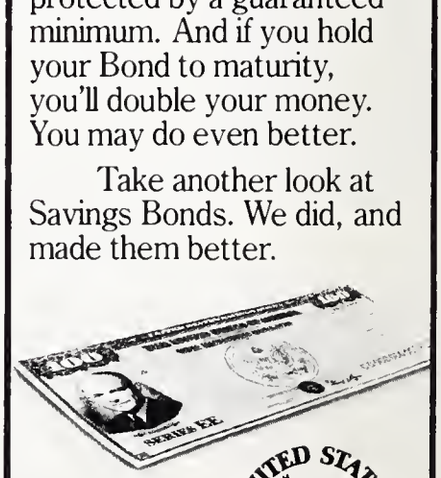

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THE ANAEROBIC THRESHOLD IN CLINICAL MEDICINE:

ITS BACKGROUND, DETERMINATION AND APPLICATION

(The first of two parts)

Jay E. Caldwell, M.D., M.P.H.

Part I: The Physiological Background

INTRODUCTION

The measurement of physical performance has important applications in medicine, industry and athletics. By knowing the balance of the aerobic and anaerobic components of performance, we can better understand the impact of the stresses to which a person is subject. In medicine we can determine to what level of activity a patient must limit him/herself if there is active or chronic disease; in industry we can evaluate the level of fitness required by various tasks; in athletics we can estimate performance capacities and limitations. Determination of the *anaerobic threshold* at where the appropriate instrumentation is available, has proven highly successful in providing this data.

In this paper I shall briefly review the physiological basis and meaning of the anaerobic threshold, describe its measurement, and discuss its applications in clinical medicine and sport.

PERFORMANCE AND THE AEROBIC THRESHOLD

The measurement of performance should involve the measurement of energy, but because of technical limitations, the external manifestations of that energy, work output. Work is the application of a force over a distance:

$$\text{Work (W)} = \text{Force (F)} \times \text{Distance (D)}$$

Distance is a critical factor; by definition, isometric exercise effects no work output. To be sure, tension is generated in the muscle, and this requires the release and capture of energy, but no work is done.

The ratio of the energy output (useful work) to the total energy generated in the muscle is referred to as efficiency, and it is well to keep in mind that for most work and sports activities efficiency rarely rises above 25%. For running on a treadmill it is about 18%, for cycling about 25%, and for swimming less than 10%.

Understanding the production of energy in the musculoskeletal system is basic to establishing performance testing protocols, to accepting their limitation, and to applying their data. For muscle tension to develop, with or without contraction, energy must be released from the high-energy phosphate bond of adenosine triphosphate (ATP) and captured by the actin-myosin-troponin complex of the muscle fibrills. There is only a small amount of ATP available within muscle, so that it must be continually regenerated in order for muscle activity to continue:

$$\text{ATP} = \text{ADP} + \text{Pi} + \text{Energy}$$

(The energy source for driving this reaction to the left is ultimately the sun in that the food chain is inseparably linked to solar energy. Man is essentially solar-powered!)

Oxygen is necessary, not as an energy source, but as a requisite link in the bioenergetic processes which release energy from fuels. Thus, the most accurate way to judge the power of the energy transformations occurring during normal activities and most exercise is to measure O_2 consumption.

Director, Alaska Sports Medicine Clinic. This was presented in a slightly different form at the Alaska Sports Medicine Society, February 21, 1983.

Of course, there is more involved in performance than oxygen use. Raw strength or power does not require oxygen, nor do flexibility or movement patterns. Speed and skill, two other determinants of performance (at work or play), derive from these non-oxygen-requiring processes. They do require energy, of course, but the necessary regeneration of ATP can be temporarily achieved from stored phosphagens (creatine phosphate predominately) or from the incomplete disassembly of glycogen/glucose which yields a small amount of ATP rapidly. They can be evaluated without measuring oxygen or even cardiopulmonary function. Sustained work, however, needs a continuous supply of energy, and thus oxygen measurements are preferable.

As work increases, energy expenditure and oxygen consumption also increase. Thus, the best single measure of aerobic power is the determination of the maximum amount of oxygen one can process (VO_2max). The problem is that such a test can be both unpleasant and, for some, dangerous. Outside of sporting activities, most people rarely put forth maximum efforts, and even then, rarely. Maximum effort is generally very uncomfortable. The demands placed on the untrained body can elicit deleterious responses, even to the point of decompensation; this is especially true in people with unsuspected heart disease.

Compromises, none very satisfactory, have been suggested. For example, by measuring responses to several levels of less than all-out effort, we can predict what the maximum effort might be. The heart rate responds to increasing work in the same fashion as does oxygen consumption. The pulse can be monitored easily, by palpation or electrically, whereas oxygen consumption cannot. In order to predict maximal work capacity we would still need to know the fastest possible heart rate of which one is capable, but since this peak value is related to (and declines with) age, that too can be estimated.

Though standardized in the early 1950's in Sweden by the Astrands, Irma and her husband Per-Olaf, this "do-it-yourself" physiology is of limited applicability and validity. The correlations between heart rate and O_2 uptake are not tight, the original protocols are rarely followed carefully (which makes extrapolation even more difficult) and cycle ergometers are generally not calibrated well. Furthermore, Americans are generally unfamiliar with bike pedalling and the slow pedal speeds usually employed (50-60 rpm) require too much anaerobic activity. The result is increased strain on the heart and inaccurate VO_2max estimate. The use of treadmills and electrocardiography improves the picture somewhat, but these tests are generally quite expensive, are usually reserved for the care of patients suspected of having coronary artery disease, and still provide only indirect estimates of oxygen uptake.

Aside from its value--which is questioned by many--in diagnosing and following coronary artery disease, the Graded Exercise Stress Test (GXST) is often used to establish training intensities for both athletes and patients. The introduction of anaerobic threshold (AT) determination as a component of the GXST has at least short-circuited the need for maximal efforts, though not the measurement of ventilatory gases. Although the principle of the anaerobic threshold has been known for several decades, there has been a recent surge of interest in it, and especially in its practical application.

One of the established principles of exercise science is that in order to improve a variable, be it an energy system or flexibility, that variable must be moderately overloaded during training. In order to achieve a useful training effect consideration must be given to specific energy systems. By using the anaerobic threshold as a guide, training programs can be tailored to individual energy systems.

The simplest method for setting training levels is to train at 60-80% of the maximum work capacity, or not knowing that, at approximately 70-90% of the maximum heart rate. If the maximum heart rate is not known, or is not determined during the GXST, then one or another of several mathematical formulae can be used. This seems to work, at least for most people, but it is obviously inexact, and we know from anaerobic threshold evaluations that it can be counter-productive for some. The need to define training levels more precisely, but more importantly, to establish them individually, has shifted the focus of many in the field away from determining maximal capacities to determining training thresholds.

THE PHYSIOLOGICAL BASIS OF THE AEROBIC THRESHOLD

Oxygen consumption can be thought of as a three-stage process. First the air and its oxygen must be brought into the body, this being accomplished by ventilation. Next the oxygen must be transported to the active muscles, this being the responsibility of the heart, the blood, and the blood vessels. Finally, the oxygen must pass from the blood into the muscle cells themselves and contribute to the metabolism of food substrates. The major "by-product" of metabolism are water and carbon dioxide. Water is retained either in the tissues or in the blood, while CO_2 is eliminated from the body by a reversal of these same three processes.

During exercise the activity of all three components increases. We breathe faster and deeper. Our hearts pump faster and harder, and for awhile, more with each contraction. As our muscles warm, enzymes increase their activities.

Measurement of work sums the contribution of these three elements, and therein lies the problem with the exercise test. Simply knowing the total capacity of the oxygen processing system does not tell us the individual contribution of each of its components. Peak ventilation and circulation can be increased by only small amounts because the healthy person already functions near their biological maxima. So, although training may increase the VO_2max 15-25%, cardio pulmonary factors play a very small part in that increase. Unfortunately, from the standpoint of testing, they are

the most important determinants of the absolute level of the total work capacity, which is the reason heart and lung disease have such detrimental effects on daily function. Said another way, the heart and lungs play the major role in physical activity, but improvements in heart and lung function.

Rather, training affects the muscles, and in particular, the metabolic processes within them. When we increase our VO_2max we do so mostly by improving the enzymatic processes within the muscle cells. Simple said, they can do the same work with less oxygen, or they can do more with the same oxygen. The well-known decrease in heart rate that occurs with physical conditioning occurs not so much because the heart is working any better, but because it can "get by" on less. In someone with coronary artery disease which has compromised the blood supply to the heart to the point that pain (angina pectoris) occurs during activity, such an economy can be salutary, if not life-preserving. The amount of oxygen needed by the heart to keep itself beating normally, and not produce pain, is directly related to the rate at which it beats. So, if during any given activity the muscles require less oxygen, the heart will respond to this efficiency with a lesser tachycardia. In turn, it will need less oxygen (not because it is working better, but because it needs to work less), and therefore will no longer signal distress. Thus angina pectoris can be decreased by physical training even though there may be little effect on the atherosclerotic process itself.

How then can we measure, in isolation, the contribution of muscle metabolism in exercise? One method is to obtain a muscle biopsy during exercise for determination of the activities of the enzymes actually involved in the metabolic processes. Such muscle biopsies are tedious, unpleasant, and certainly not practical. Determination of the anaerobic threshold, however, provides a functional estimate of these intracellular processes, and can be done non-invasively. It is based on the varying fates of the substrates metabolized during exercise of varying intensity.

As mentioned earlier, all foods or fuels, if "burned" completely in the presence of oxygen revert to CO_2 and water. During aerobic metabolism an essential function is to bind with the nuclei of hydrogen atoms (protons) as they emerge at the end of the cascade of cytochrome enzymes located along the inner surfaces of mitochondria. It is within these mitochondria that energy is extracted from the electrons of the hydrogen atoms and made available for use during exercise, or for that matter, during any physiological process. The leftover naked hydrogen nuclei are picked up by oxygen, forming water. Assuming that there is a sufficient supply of fuel and oxygen, this process can go on indefinitely.

The main problem with mitochondria respiration is that it doesn't produce energy rapidly enough to meet peak needs. During heavy exercise we need more energy more quickly than aerobic metabolism is capable of yielding. Fortunately, there are alternative and more powerful sources of energy available which do not require oxygen. Their critical handicap is that they can function for only short periods of time; that is, though powerful, their capacity is limited.

The immediate source of energy for the creation and motion of actin-myosin cross-bridges is the phosphagen pool, so named because when cleaved, phosphagens yield free phosphate ions. We have enough of this ready-at-hand stockpile to power less than 10 seconds of all-out exercise.

The main fuel sources for activities lasting longer than 10 seconds are the carbohydrates stored within the muscle as glycogen, and the fats stored as triglycerides or circulating as free fatty acids. Circulating glucose plays a less important role in energy production, but a critical one for maintenance of cerebral function. Protein metabolism is of minimal importance in energy production. In order for energy to be completely extracted from any of these fuels they must first be broken down into two carbon fragments which can enter mitochondria. The "burning" of fats can take place only within the mitochondria and requires oxygen. Carbohydrates, on the other hand, yield small amounts of energy prior to their entry into the mitochondria, and do so without the need for oxygen.

To visualize the anaerobic threshold anaerobic glycolysis (splitting of sugar withou oxygen), must be understood. The glucose molecule, which is split off from a glycogen polymer, contains six carbon, six oxygen, and twelve hydrogen atoms. During glycolysis glucose is cleaved into a pair of three-carbon fragments. In this complex process--it encompasses nine major steps and enzymes--energy is released, not much, but very rapidly, and without the involvement of oxygen. Each of these pyruvate molecules is then capable of releasing an additional molecule of CO_2 whereupon it can enter the mitochondrion for further processing. In the presence of oxygen this process continues indefinitely, a little energy being made available from the anaerobic glycolysis taking place in the cytoplasm outside the mitochondria, but a whole lot more from the aerobic processes within them.

During the conversion of glucose to pyruvate a hydrogen ion is released. When oxygen is present this hydrogen passes along the mitochondrial enzyme cascade surrendering its energy, finally being captured by oxygen, yielding water. In the absence of oxygen the cell must do something else with this hydrogen for a surplus of hydrogen atoms can alter the configuration of the enzymes involved in metabolism, thereby poisoning the system.

The solution is ingenious. The very pyruvate, accumulating in the cytoplasm because its degradation and entry into the mitochondria is blocked, binds the hydrogen. This new molecule is known as lactate or lactic acid, depending upon its state of ionization.

Lactate is a valuable compound. It acts as a hydrogen (proton) sink, deterring the onset of metabolic acidosis; by being the hydrogen acceptor in lieu of

oxygen it allows the continuation of the anaerobic energy processes. Furthermore, the glucose molecules that have been sidetracked to lactate are not lost to the energy system. Once system is again available, the lactate can surrender its "extra" hydrogen (to oxygen), thereby reverting to pyruvate. Pyruvate can either be processed into water, CO_2, and energy in the mito chondrial aerobic system or, if all energy needs have been met, it can be shuttled back into glycogen. By no means is lactate a "waste product", although some workers think that this may directly inhibit some of the enzymatic steps in cellular metabolism.

At some point we all tire during intense exercise. It seems, however, that it is not a build-up of lactate that causes this, but rather a piling up of hydrogen ions once the limits of the lactate system have been exceeded. Lactate apparently derived its nasty reputation from the very early work of Nobelist A. V. Hill and his co-workers in London who produced high levels of circulating lactate in frogs by inducing local hypoxia. Although lactate is currently a consequence of hypoxia, it is not at all clear that hypoxia is the only inducer of lactate. Furthermore, it has never been shown that lactate is the cause of the associated fatigue.

Lactate has one other property, which is the basis for anaerobic threshold measurement. Once formed, it quickly diffuses out of the cell and into the blood stream. Such diffusion is related to membrane permeability. Lactate's appearance in the circulating blood pool also depends on the capillarization of the active muscles. How quickly and consistently this diffusion occurs is currently under heated debate by exercise physiologists and biochemists, but diffusion averts a log jam in the intracelluar anaerobic system.

There is a delicate relationship among the intensity of exercise, the mix of aerobic and anaerobic metabolism, and the fate of lactate. The proportion of fast- and slow-twitch muscle fibers can be thought of as the arms of the scale on which these factors are poised. At very low levels of effort very little lactate is produced, and what little that is, is shunted back into the aerobic system. In slow-twitch fibers the enzyme lactic dehydrogenase (LDH) exists in a form (H-LDH) which promotes the oxidation of lactate. In any case, at low exercise intensities, such as activities of daily living, fats, not carbohydrates, are the principal fuel. Fats require oxygen for metabolism and don't yield lactate. As the intensity increases there will be a gradual shift towards moderate carbohydrate consumption; more lactate will be formed but the system is still capable of re-using it as a fuel so that the level in the blood remains about what it was at rest.

Lactate re-use continues up to a critical point which seems to vary among individuals although it is higher among those who are "in shape". At this point the capacity of the system to oxidize lactate is exceeded. More lactate is produced than can be metabolized, so it diffuses into the bloodstream. This tipping of the balance is related to a shortage of oxygen such that not only is more lactate being created, but very little of it can be reconverted to pyruvate and shunted into the mitochondria. We say that metabolism has shifted from being predominately aerobic to being anaerobic. This is the anaerobic (or lactate) threshold.

This is not, however, the point at which we are exhausted. In fact most people rate exercise at this level as only moderately hard, perhaps 14 on a scale of 20. The point is that we have entered a dead-end that will result in exhaustion. We have exceeded the ability of lactate to maintain aerobic harmony. Increasing lactate in the blood implies increasing lactate in the muscle cells which in turn implies an increasing production of hydrogen ions. We may be able to increase the amount of oxygen delivered to the cell, but it will not be sufficient to meet the demands of the workload. The enzymes of the aerobic system will gradually change configuration as the added hydrogen ions make the environment within the cell more acidic. Pyruvate will attempt to cope with the problem by binding these protons and the lactate which is created will diffuse even more rapidly from the cell. But the effort will be in vain.

In intense efforts lasting from a minute to an hour we will be limited by a relative oxygen shortgage long before we use up our fuel stores. Lactate in the circulation is simply a mirror of this and the anaerobic threshold is a measure of the point of no return. If we exercise at an intensity below this threshold we could continue indefinitely or at least until all our fuels were used up, or one of several other metabolic or biomechanical problems intervened. At exercise above this threshold we will soon become exhausted. As we shall see later, exercise around this intensity has important training ramifications.

(Part two dealing with clinical determination and application will be published in the next issue of Alaska Medicine.)

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GELASTIC SEIZURES: CASE REPORT

Richard M. Lehman, M.D.

Gelastic (laughing) seizures are rare phenomena with fewer than 150 cases previously reported. This article describes the clinical course of a single patient including the radiographic and electroencephalographic findings. Pathophysiology and clinical manifestations are discussed.

Laughter as a manifestation of a seizure disorder was first described by Trousseau in 1873 (13). Gelos, the Greek word for mirth, is the basis for the term gelastic seizure which was introduced by Daly and Mulder in 1957 (2). This phrase is used to describe any seizure in which laughter occurs either as an isolated event or as a component of a more complex seizure. There is no particular laughing center that can be localized although there are various epileptigenic foci which have been associated with this type of seizure. Such foci have been found in the temporal lobe, the limbic system and the hypothalamus (4). Fewer than 150 cases of gelastic seizures have been reported in the literature (3). They have been associated with crying (dacrocystic seizures) or at times with running (cursive) seizures (1, 12). Laughter may be the entire seizure or the laughing may be associated with adversive movements, absence or confusion episodes. The laughter may be followed by a generalized seizure.

Report of a Case:

The patient is a 21 year old left handed man. For 4 to 5 months prior to his first hospital admission in May of 1981 he had experienced paroxysmal episodes of laughing and confusion followed by mild frontal headache. The episodes lasted several minutes. On the day of his first admission he had an eqisode of laughter followed by a generalized seizure. The seizure began with an adversive movement of the head and eyes to the left side. He was brought to the Emergency Room, where he had another minor spell. Interictally no changes in personality, intellect or focal neurologic symptoms were observed. Neurologic examination showed no focal deficit and his general exam was within normal limits. A CT scan of the head showed a high density lesion in the lateral aspect of the right temporal lobe. Angiography was negative for a vascular lesion in the area. There was no shift of midline structures. An EEG was normal. The diagnosis of a small hamartoma in the right lateral temporal lobe causing gelastic seizures was made based on these findings. The patient was instructed to take 200 mgs of Dilantin twice a day and was permitted to go home.

Over the summer months the seizures became more frequent and there were more severe motor episodes. They became so frequent that the patient did not leave his room. He was unable to work. The treatment with Dilantin was augmented with Tegretol. An EEG done in July of 1981 during a seizure showed an epileptic focus in the right temporal lobe. Memory testing and IQ indicated the patient was functioning in the adult normal range. There was no specific lateralizing intellectual deficit. His memory was commensurate with his overall intellectual level.

Because of the progressive nature of the seizures in spite of optimum doses of medication, it was recommended that the patient undergo a right frontotemporal craniotomy, electrocorticography and anterior temporal lobectomy.

During the electrocorticography major sharp and spike activity could be seen from the midportion of the first and second temporal convolution. Anterior temporal lobectomy extending 4 cms along the first temporal convolution and 7 cms on the third convolution was carried out and the mesial temporal lobe including the pes hippocampus was removed. Underneath the second temporal convolution there was a hemorrhagic area with a fair amount of vascularization and hemosiderin staining. Pathological examination revealed this to be a congenital capillary hemangioma. In the postoperative period the patient had no seizures. Postresection electrocorticography showed no spike activity. At the time of discharge he was instructed to take 400 mgs Dilantin and 400 mgs Tegretol each day. In the first month after discharge the dosage of Tegretol was tapered and stopped. Dilantin was main-

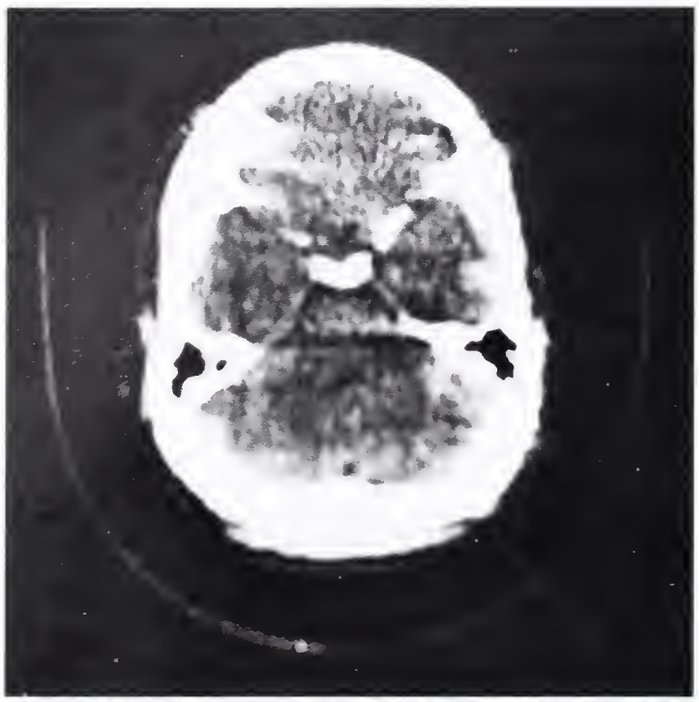

Fig. 1 · CT scan of the head showing a high density lesion in the lateral aspect of the right temporal lobe.

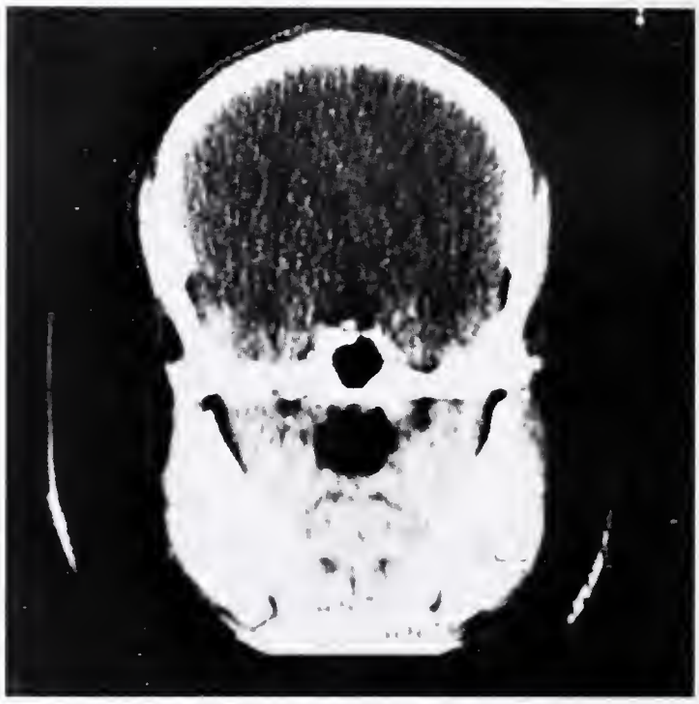

Fig. 2 · CT coronal reconstruction pre-op.

tained at 400 mgs per day. At the time of the last office visit he was free of seizures. His intellectual and affective personality were much improved. He continues to be free of seizures, maintained on 300 mgs of Dilantin daily. He is gainly employed.

Discussion:

Since the original description by Trousseau in 1873 (12) and the more recent clinical paper by Daly and Mulder (2) which emphasized that laughter is a major component of the attack, reports of gelastic seizures in all age groups have occurred. Penfold et al, have stressed that gelastic epilepsy must be differentiated from pathologic laughter, hebephrenic psychoses, or as a result of isolation or release phenomenon. These later phenomenon may occur with various etiologies such as vascular, degenerative, or traumatic lesions causing pseudobulbar palsy or in frontal lobe lesions in which the patient is intensely amused at his own poor jokes (10). When laughing is associated with pseudobulbar palsy, the patient is often conscious of the inappropriate paroxysm and may indeed be disgusted by involuntary outbursts. Such episodes may last for prolonged periods of time. Gascon and Lambroso (3) require the following criteria for the diagnosis of gelastic epilepsy: (a) stereotyped recurrence, (b) absence of external precipitants, (c) other manifestations of epilepsy, (d) presence of ictal or interictal EEG epiliptiform activity and (e) absence of other causes of pathologic laughter. It should be noted that in this case report the patient had a laughing seizure while in the EEG laboratory in July. This was recorded clinically as well as electroencephalographically.

The type and localization of lesions in gelastic seizures are variable. The association of gelastic seizures with hypothalamic lesions and precocious puberty is now recognized (5). many other lesions

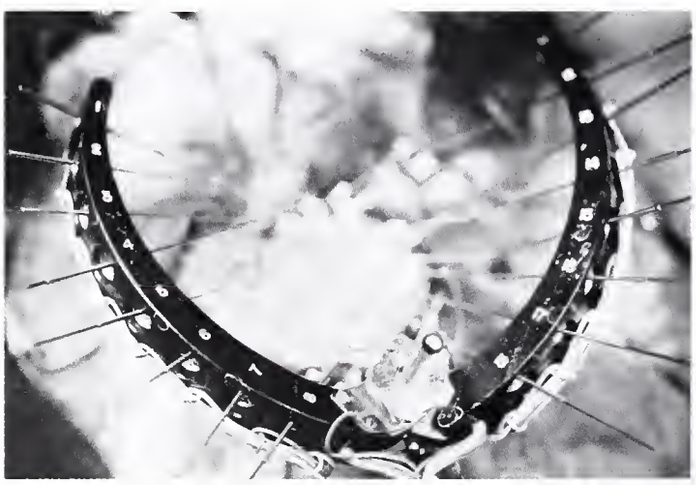

Fig. 3 · Grass Electrocorticography apparatus pre-op.

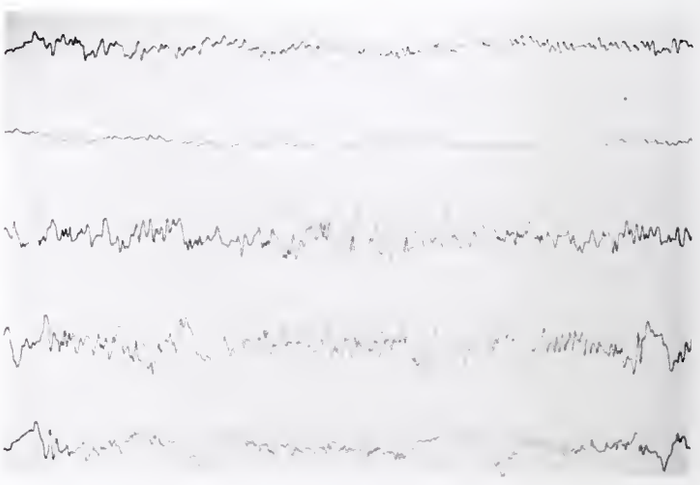

Fig. 4 · Intraoperative pre-resection electrocorticography

including astrocytomas of the mamillary body, pituitary tumors, 3rd ventricle tumors, temporal lobe gliomas, trauma, encephalitis, menigitis, and lipid storage disease have been described (4).

From the neurophysiologic standpoint there is not a specific area. Production of laughter seems to require integrated function of the cerebral cortex, both frontal and temporal for memory and intellect as well as the medial temporal lobes, the limbic system for display of emotion and diencephalon-hypothalamus and their projections into the midbrain and brainstem (7, 14). Electroencephalographic findings are also variable but the most frequent findings have been temporal lobe spikes. This patient's first EEG was normal. A second EEG performed in the laboratory while the patient was having a seizure was quite positive with slow wave activity in the right temporal lobe plus spike and sharp wave activity which then projected bilaterally in both frontal areas. This EEG study exhibits the projections cortically into a secondary type of synchrony from a subcortical unilateral lesion. The epileptogenic focus in this case was a small hemangioma. Removal of the lesion combined with a standard anterior temporal lobectomy for seizure has been associated with cessation of his seizures.

Surgery for focal epilepsy became fairly well standardized after World War II largely due to the work of Penfield and associates (8, 9). Following Dr. Penfield's work in Sherrington's lab, he established the Montreal Neurologic Institute in 1928. His early work at the Institute was aided by Dr. Jasper's establishment of an electroencephalographic laboratory in 1938. Their efforts in focal epilepsy including electrical stimulation and recordings in the awake patient at surgery has changed the approach to patients. The results of epileptogenic excision and operative technique, are put forth in their classic text, **Epilepsy and the Functional Anatomy of the Human Brain**.

In this clinical presentation of a rare form of epilepsy, the standard diagnostic workup and excision of the epileptogenic focus, i.e. hemangioma with the cessation of seizures as taught by the Penfield school of temporal lobe seizure surgery and carried out at the Montreal Neurologic Institute is presented. Electroencephalographic recordings at the time of surgery were carried out with the Surgical Grass Electrocorticography apparatus.

Fig. 5 · Post-operative electrocorticography

Fig. 6 · Post-resection electrocorticography

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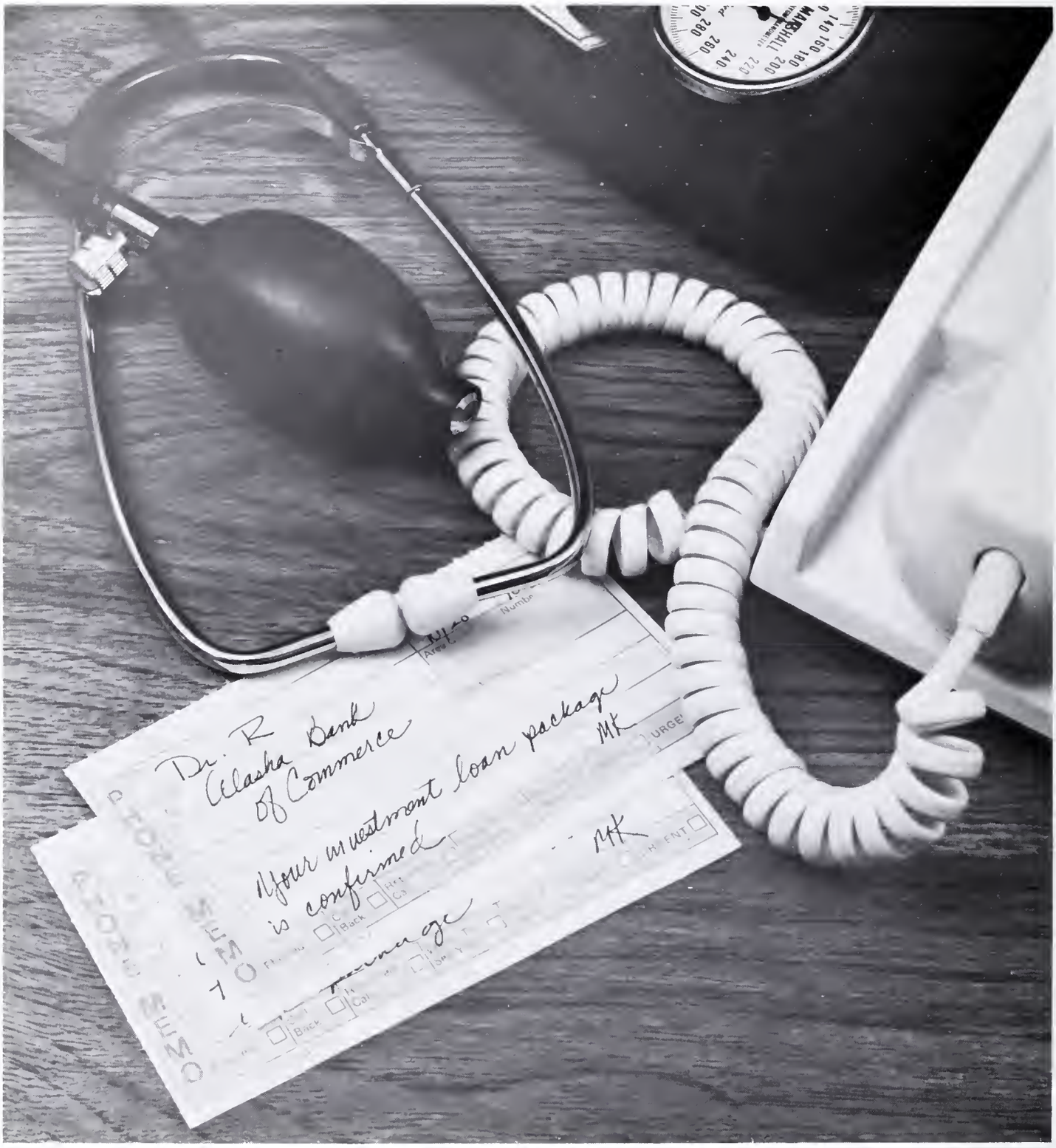


We Make Things Happen.

ALASKA BANK OF COMMERCE

MEMBER FDIC

MYTHS OF MID-WINTER DEPRESSION

Russ Christensen

Peter W. Dowrick

Abstract

An investigation was conducted into the effect of a major Alaskan annual winter festival upon the rates of crisis data. Analysis of rates of suicide, attempted suicide, family disturbance calls, crisis calls, and mental health admissions indicated no significant effect of the festival. Statewide statistics over several years indicate that demands for depression-related services appear to peak in either the summer or the fall. These results do not support the widely held belief that depression is more common during the winter in the North or that mid-winter festivals help to promote psychological well-being. It is concluded that the pervasiveness of such myths may lead to misdiagnosis or mistreatment, and that other folklore should be examined for its validity.

Anchorage, Alaska and Honolulu, Hawaii: Seasonal Differences in Demand for Counseling Services.

Researchers have for some time been attempting to determine if seasonal variations in weather or climate influence mental health. A considerable body of work on seasonal trends in suicide exists (1). However, the less dramatic indicators of mental health, but which involve many more people, such as the demand for counseling services, have received little attention.

In an attempt to go beyond the limitations of most previous studies on winter and climate and mental health which examined data from single mid-latitude and often mid-continent locations this study compared two cities with very different climates and locations: Anchorage, Alaska and Honolulu, Hawaii.

Anchorage, located at 61 degrees north latitude -slightly farther north than Oslo, Stockholm, Helsinki or Leningrad - with approximately 200,000 residents contains nearly half the population of Alaska. The dominant climatic characteristic is winter, lasting from October to April. Summer tends to be brief, overcast and rainy (2).

Honolulu, located at 21 degrees north latitude - two degrees north of Mexico City - is the largest city in Hawaii with a population twice that of Anchorage. The climate of Honolulu, because of its mid-Pacific location, is warm and pleasant year-round. There are only small seasonal variations in temperature and amount of daylight (3).

If one believes that weather or climate does effect mood, if not mental health - a new field of research, psychological biometeorology, has recently come into being just to study that relationship - then one could logically expect that two cities with very different climates would have two different mental health patterns.

Using the chi square test of significance data from community mental health centers in Anchorage and Honolulu for the last three years (1979 - 1981) was analyzed.

Anchorage Community Mental Health Center admissions (Family, Adult and Geriatric units) for the three-year period (N = 3,517) experienced statistically significant seasonal differences (P = -.001). Summer (June, July and August) was the season with the greatest number of admissions with 1013, while winter (December, January and February) was the season with the fewest having only 702. Spring and autumn had 856 and 946 respectively. The three-year peak is somewhat misleading as there was considerable variation in peak season from year to year - summer in 1979, spring in 1980 and autumn in 1981. However, winter was the season with either the lowest - 1980 and 1981 - or next to the lowest number of admissions -1979 - for the three-year period.

In contrast, Honolulu did not experience statistically significant seasonal differences in admissions to its two community mental health centers - Diamond Head and Kalihi Palama - (N = 3,167) (P = < .10): spring 818; summer 828; autumn 776; and winter 745.

The results of the above analysis could lead one to

suggest that Anchorage's winter low is the result of expectations about climate. In Anchorage, the long, cold winter is expected by new arrivals and accepted by long time residents and for some (many?) it is seen as a challenge or at least an interesting phenomenon. Spring, on the other hand, is a time of melting snow and ice and mud; summer tends to be overcast and rainy; and autumn is merely a brief transition to winter. They, rather than winter, are the seasons during which people are most likely to seek counseling. In contrast, the rather equable year-round climate of Honolulu moderates the seasonal variations in demand for counseling services.

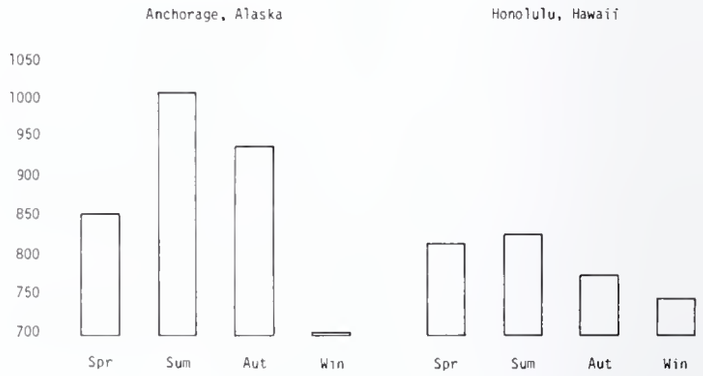
The above patterns may or may not support the idea that weather or climate effects mental health. Not only may there be biometeorologic, but socioeconomic factors at work. There may also be a masking effect of the true influence of weather or climate by the use of "standard" seasons for different climatic areas or for nations or regions that are climatically diverse. The use of standard seasons assumes that seasons, whatever the climate or location, are perceived physiologically and psychologically the same. This is probably a fallacious assumption. Therefore, it is rather difficult to empirically demonstrate a relationship between the weather or climate and mental health (1).

Anchorage's winter low in community mental health center admissions is to most an unexpected phenomenon. However, it merely reflects the state-wide pattern (4). A winter low is also to be found for suicides nationally as well as being far from uncommon internationally (1).

Be that as it may, there remains a widespread belief among the general public in winter depression in Alaska and among some Alaskan mental health professionals in a springtime peak in demand for counseling services (5). The unfortunate results of this popular wisdom may be the misdiagnosis of winter or spring complaints as normal. Friends may talk of winter "cabin fever". Counselors and physicians may tell the client/patient that the depression, anxiety, etc. he/she may suffer in the spring is seasonal. Or they may misinterpret complaints voiced in the summer and autumn as unusual when in fact they are not. And to add injury to insult many counselors and physicians tend not to work with or treat those people they expect to get better on their own. Therefore, it is important that those who are sought out by others for comfort be aware that the "blues" in Alaska appear to be least prevalent during the winter and do not peak during the spring but continue on through the summer and autumn.

Acknowledgements

My thanks to Phil Huntington of the Anchorage Community Mental Health Center and Myra Oshiro of the Mental Health Division, Department of Health, State of Hawaii for the data.



Community Mental Health Center Admissions 1979 -1981

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SLEEP LABORATORY AT PROVIDENCE HOSPITAL

THE FIRST 21 MONTHS

Shirley H. Fraser, M.D.

Edna Borovich, R.N.

Sharon Taylor

Abstract

Between April 8, 1981 and February 8, 1983 fifty-one patients were referred to the Providence Sleep Laboratory. Forty-one complained of excessive daytime sleepiness. Thirty-three of these had been referred as possible sleep apnea and eight for narcolepsy. The results were that eight of the suspected apnea patients actually had moderately severe to severe sleep apnea and three had narcolepsy. We concluded that establishment of the laboratory is justified and greater awareness of sleep disorders and more accurate diagnoses are needed.

" . . . the innocent
Sleep that knits up the ravelled sleave of
care,
The death of each day's life, sore labour's
bath,
Balm of hurt minds, great natures
second course,
Chief nourisher in life's feast."

MacBeth
Act II, Scene II
William Shakespeare

In order to study that still mysterious state called sleep, a sleep laboratory was established at Providence Hospital, Anchorage, Alaska in April 1981. This report is a brief summary of the goals, techniques and results of the study of fifty-one patients in the first twenty-one months of operation.

Providence Hospital, Anchorage, Alaska 99504

As a result of increasing interest in sleep during the past decade over forty-eight sleep centers and laboratories have been established throughout the United States. From their studies it is apparent that endocrine output, temperature, heart rate, blood pressure, gastrointestinal motility and dreaming are related to sleep-wake cycles, Any disturbance of sleep also disrupts these normal circadian functions.

Because of our limited staff, sleep studies were limited to patients whose sleep symptoms were considered possibly life threatening such as severe sleep apnea and narcolepsy. As you will see, a few other disorders crept in.

Sleep apnea is defined as the absence of respirations for periods longer than ten seconds, occuring more than thirty times per night of sleep. The resulting oxygen desaturation can result in ventricular arrhythmias, pulmonary hypertension and even death. Clinically, the patients complain of unsatisfactory nocturnal sleep, excessive daytime sleepiness, and sleeping spells, impotence, irritability, morning headaches and diminished mental ability.

Narcolepsy is characterized by daytime sleeping spells but normal nocturnal sleep. The risk to life occurs if the patient falls asleep while driving or operating dangerous equipment. Clinical features include the sleep spells, cataplexy, sleep paralysis and hypnagogic hallucinations.

Both sleep apnea and narcolepsy are demonstrated using the Stanford Sleep Center procedures for polysomnography (PSG). For sleep apnea, a PSG consists of a single channel EEG, air flow via oral and nasal thermisters, respiratory effort measured by strain

gauges across the lower chest and upper abdomen, and electromyography of the chin and legs. Eye movements are also recorded. All these are converted to electronic AC signals recorded on EEG graph paper. An ear oximeter is attached and the apparent oxygen saturation values (SAO) are recorded by hand at the appropriate place on the graph paper. In narcolepsy there are four channels of EEG and the ear oximeter is omitted, (unless sleep apnea and narcolepsy are both suspected). In evaluating excessive daytime sleepiness, a mutliple sleep latency test (MSLT) follows the overnight sleep recording. In this test, the patient is given four 20 minute opportunities to fall asleep at two hour internals. Patients with narcolepsy have more than one episode of rapid eye movement (REM) sleep.

On admission to the sleep laboratory, a history and physical is done with particular attention paid to the patient's sleep habits. He is also asked to fill out a questionaire with regard to whether or not a normal day preceeded the study, if his night's sleep in the laboratory was typical. We did not require a sleep log prior to coming to the lab. Lastly, it is very important to inquire regarding alcohol intake and medication. These may worsen a sleep disorder and increase the frequency and depth of the oxygen desaturation.

Twenty-one months have elapsed since beginning sleep evaluations. In that time fifty-one patients have been evaluated by PSG, MSLT or both. The ages ranged from eleven to seventy-six (See table below).

AGE	NUMBER
10-19	5
20-29	3
30-39	7
40-49	12
50-59	21
60-69	2
70-79	1

The reasons for referral are as follows:

Disorder of initiating or maintaining sleep	41
Possible sleep apnea	33
Possible narcolepsy	8
Question of needing nocturnal oxygen	3
Excessive snoring	2
Apnea from seizures	1
Possible nocturnal seizures	2
Disorder of initiating or maintaining sleep	1
Parasomnia	1

The final diagnosis was based on the history, physical examination and PSG results. There were thirty-three patients evaluated for sleep apnea and it was found in twenty-one of them. Eight were felt to have severe sleep apnea. Severity was judged on degree of desaturation and frequency of the apneas. If the patient's SAO fell below 50% and/or he had more than 30 apneas per hour, and especially if cardiac arrhythmias were observed he was considered as having a severe sleep apnea.

Three of our patients were surgically treated. In two, reconstructive surgery of the posterior pharynx and a tracheotomy were done. Both were restudied and showed a marked improvement in symptoms and PSG results. The third patient has been lost to follow up.

Among those eight patients referred for possible narcolepsy, three fulfilled our criteria of early onset REM, plus two or more REM episodes on the MSLT. Mild daytime sleepiness was demonstrated with the MSLT in one and the other four had normal sleep studies.

Although we did not require a sleep log prior to coming to the lab, we now feel it would assist the physician in diagnosis and the laboratory in utilizing the most helpful techniques. A sleep log is a record of the time a patient retired, his bedtime ritual, the quality of his night's sleep and whether or nor he snores. It also includes the time he gets up and if he has a morning headache and irritability. Any day time naps or sleeping spells must be mentioned and medication and alcoholic beverages noted.

Fifty-one patients is a small number but approximately one-fifth had an apparently life threatening illness. This seems to justify establishment of the sleep laboratory. What is even more apparent from this beginning is the presence of many other sleep disorders and the need for greater knowledge of diagnosis, prognosis and therapy. Continued study seems warranted.

GLOSSARY OF TERMS:

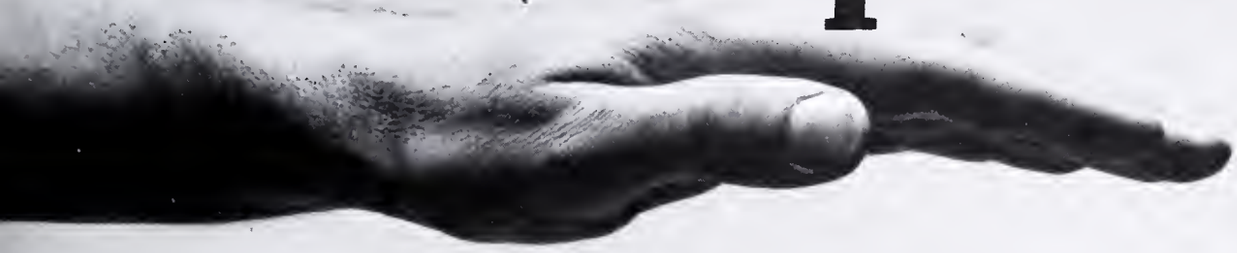
CATAPLEXY: Brief loss of voluntary muscle tonus with strong stimulus.

SLEEP PARALYSIS: Loss of voluntary muscle control at onset or arousal from sleep.

HYPNAGOGIC HALLUCINATIONS: Vivid dreams confused with reality.

PARASOMNIA: Normal appearing activity such as walking or talking except the patient is sound asleep.

There's more to ZYLOPRIM® than (allopurinol).



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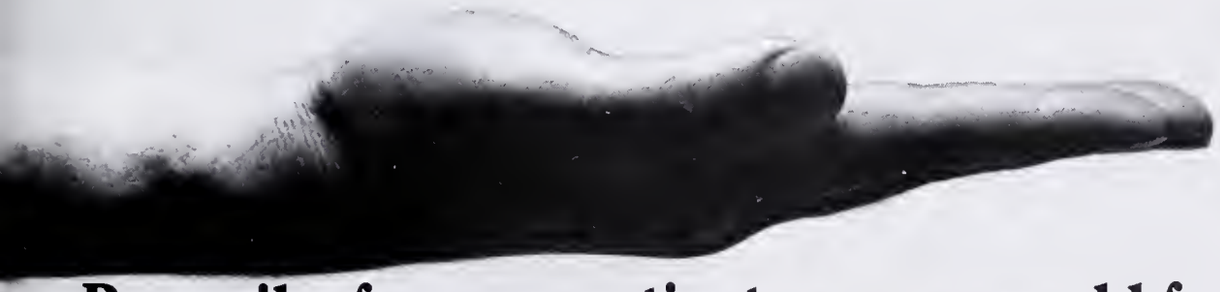

Prescribe for your patients as you would for yourself.

Write "D.A.W.," "No Sub," or "Medically Necessary," as your state requires, to make sure your patient receives the original allopurinol.

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AUXILIARY NEWS
Marge Muzzall

Springtime is report time for the Auxiliary. Auxiliaries throughout our country have had another busy and productive year. Sharing portions of some of the national reports give an idea of the direction and efforts of auxiliary as a whole.

AMA-ERF

A new fund to assist medical students was created by AMA-ERF. The purpose of the Medical Assistance Fund will be to add resources to the student financial aid programs and student loan programs of medical schools. Donors to the new fund will select the school that they want to benefit from their gift. Any gift to AMA-ERF will be transmitted in its entirety, without a portion being exacted for expenses.

HEALTH PROJECTS

As always, health issues are always a prime concern to auxiliarians. Convention resolutions adopted this winter by the AMA Auxiliary House of Delegates reveal some of the major areas of concern for the coming year.

. RESOLVED, That programs dealing with immunization, child passenger safety, substance abuse, scoliosis screening, teenage pregnancy, and venereal disease continue to be promoted.

. RESOLUTION -- Support for the Spouses and Families of Impaired Physicians RESOLVED, That the AMAA take a primary role in promoting efforts to help the spouses and families of impaired physicians; and be further RESOLVED, That the AMAA advocate and encourage state and county auxiliaries to provide support programs for the spouses and families of impaired physician impairment; and prevention programs directed to marital and family stability.

Secretary - Marky Kay McPhee - Missouri

Treasurer - Barbara Q. Wuickstad - Idaho

Directors:

East - Lauretta Jordan - Pennsylvania
Mary Strauss - Maryland

North Central - Jean Cavanaugh - Kansas
Dorothy Olson - Nebraska

South - Edie Epstein - Florida
Virginia Kutait - Arkansas

West - Betsy Becker - Colorado
Doreen Evert - California

RESOULTION -- Support for Programs to Help Prevent Child Abuse

RESOLVED, That the AMAA encourage its auxiliaries to establish and support programs to help prevent child abuse as well as to promote awareness of the problem; and be it RESOLVED, That, where possible, these programs include identification and counsel for potential abusers, particularly parents-to-be.

RESOLUTION -- Enforcement of Drunk Driving Laws RESOLVED, That the AMAA encourage auxiliaries to become involved in programs to enforce and strengthen drunk driving laws.

REPORT B -- Support of Home Health Care Services in Community
RECOMMENDATIONS: That AMAA record its support of affordable supportive care services delivered in the home, where and when appropriate, rather than institutionalization.

Our National Report wouldn't be complete without the report of the nominating committee. The following slate of candidates has been proposed for elective office for 1983-1984.

President Elect - Billie Brady, South Carolina

Regional Vice Presidents:

Eastern - Peggy La Vigne - Massachusetts

North Central - Betty Szewczyk - Illinois

Southern - Pat Durham - Texas

Western - Ella Kimball - Airzona

NEWS FROM STATE AMA-ERF COMMITTEE

Chairman, Susan Bowers reports that Alaska's contribution to AMA-ERF, WAMI-ALASKA has been $903.87. Alaska's contribution received a substantial boost from Christmas card sales this year. Yet to be added to the fund is a portion of the proceeds of the Anchorage Auxiliary's Shape-up For Life Run to be held May 7.

SCHOLARSHIP COMMITTEE

Letters informing students of our scholarships have been sent to 240 high schools throughout the state. Chairman, Ginny Pister reports that her committee is now hard at work drafting new criteria for the selection of scholarship winners. The Committee would welcome suggestions from other auxiliarians around the state.

NOMINATING COMMITTEE

Nominating Committee Chairman, Mary Jo Beal

has informed me that the following slate of candidates will be proposed for elective office for the year 1983-1984.

President Elect - Carolyn Crouch
Vice President - Mary Jo Beal
Secretary - Aaltje Smith
Treasurer - Linda Sutherland
Treasurer Elect - Charlene Dunn

ANCHORAGE NEWS

Many children in the Anchorage area will be much safer because of a new project launched by the Anchorage Medical Society Auxiliary. April 4th marked the beginning of the Auxiliary Safety Seat Loaner Program - PECABU (**P**rotect **E**very **C**hild **A**nd **B**uckle **U**p). The program has two offices, one at Humana Hospital Alaska, and one at Providence Hospital. Office hours for both hospitals are: Monday, Wednesday, and Friday from 10:30 - 1:30. The offices will be staffed by the Auxiliary with support from volunteers of the Humana Hospital Auxiliary and the Providence Hospital Auxiliary.

The Infant Love Seat, Model #4500 by Century Products has been chosen as the official seat for the loaner program. The program is starting with 500 seats. All the shipping charges for these seats have been paid for by a generous contribution from Alaska Airlines.

The program is open to any parent or legal guardian with an infant under 9 months of age. Prospective parents are encouraged to come in 2-3 weeks prior to delivery and reserve a seat. The seat is loaned for $15 with a $10 refund when the infant seat is returned. It is loaned for a period of 9 months or 20 pounds, whichever comes first.

The Anchorage Auxiliary has raised $15,000 since August for this project and we are very proud to be spearheading this community endeavor. We are continuing to fund raise and welcome any contributions. A donation of $25 will buy 1 car seat. Donors are recognized with a plaquard on the seat to the effect: "This seat was donated in the interest of child passenger safety by". Donations may be sent to: PECABU, Anchorage Medical Society Auxiliary, 2047 Duke Drive Anchorage, Alaska, 99504.

A future outgrowth of the PECABU Loaner Program is to extend the project to loan out safety seats for children 9 months to 5 years of age. The Auxiliary goal is to help parents begin with good habits and make every ride a safe one, starting with the very first ride!

Lorrie Horning, President
Anchorage Medical Society Auxiliary

PHYSICIANS SELF ASSESSMENT

CHOOSE THE MOST APPROPRIATE ANSWERS

1. Infants of diabetic mothers are more likely than normal babies to suffer:
   A. Hypoglycemic seizures
   B. Hypocalcemic tetany
   C. Hyperbilirubinemia
   D. Renal vein thrombosis
   E. Respiratory distress syndrome
   F. Congenital anomalies

2. When ampicillin and amoxacillin are compared with placebo in the treatment of children with symptomatic Salmonellosis, those receiving antibiotics:
   A. Get better faster, with fewer bacteriologic relapses.
   B. Get better faster, but with more frequent bacteriologic relapses.
   C. Get better no faster, but are relatively protected from bacteriologic relapse.
   D. Have the same duration of symptoms and bacteriologic relapse rate.
   E. Get better no faster and have more bacteriologic relapses.

3. The most reliable test to differentiate testicular torsion in prepubertal boys from orchitis or epididimitis is:
   A. Urinalysis
   B. CT scan
   C. Scrotal scan
   D. Palpation
   E. Rectal exam

4. Iron fortified formulas are more likely than iron free formulas to cause or aggrevate:
   A. Colic
   B. Vomiting
   C. Constipation
   D. Diarrhea
   E. All of the above
   F. None of the above

5. Most authorities recommend that exclusively breast fed term babies have a supplemental dietary iron source by age:
   A. 2 - 4 weeks
   B. 4 - 6 weeks
   C. 9 months
   D. 1 year

6. An increased incidence of Reye Syndrome has been associated statistically with the prior use of aspirin in:
   A. Chickenpox
   B. Any fever of presumed viral etiology
   C. Influenza
   D. Invasive Hemophilus influenza disease
   E. Fever secondary to DTP immunization
   F. Juvenile Rheumatoid Arthritis

7. Children age 1 - 9 years average how many colds a year?
   A. 0 - 2
   B. 3 - 8
   C. 10 - 20
   D. 21 - 40

8. The most common antecedent of renal failure leading to chronic dialysis in children under ten years of age is:
   A. Post-streptococcal glomerulonephritis
   B. Henoch-Schoenlein Purpura
   C. Obstructive uropathy
   D. Hemolytic uremic syndrome
   E. Trauma

9. The risks of pertussis immunization have been publized widely in recent months. The actual incidence of permanent brian damage attributable to vaccination is:
   A. One case for every 1000 injections
   B. One case for every 7000 injections
   C. One case for every 310,000 injections
   D. One case for every 1.4 million injections
   E. One case for every 10 million injections

True or False

10. Current recommendations from the American Academy of Pediatrics **support** the use of rifampin prophyllaxis in under 4 year old household or daycare center contacts of Hemophilus influenza meningitis.

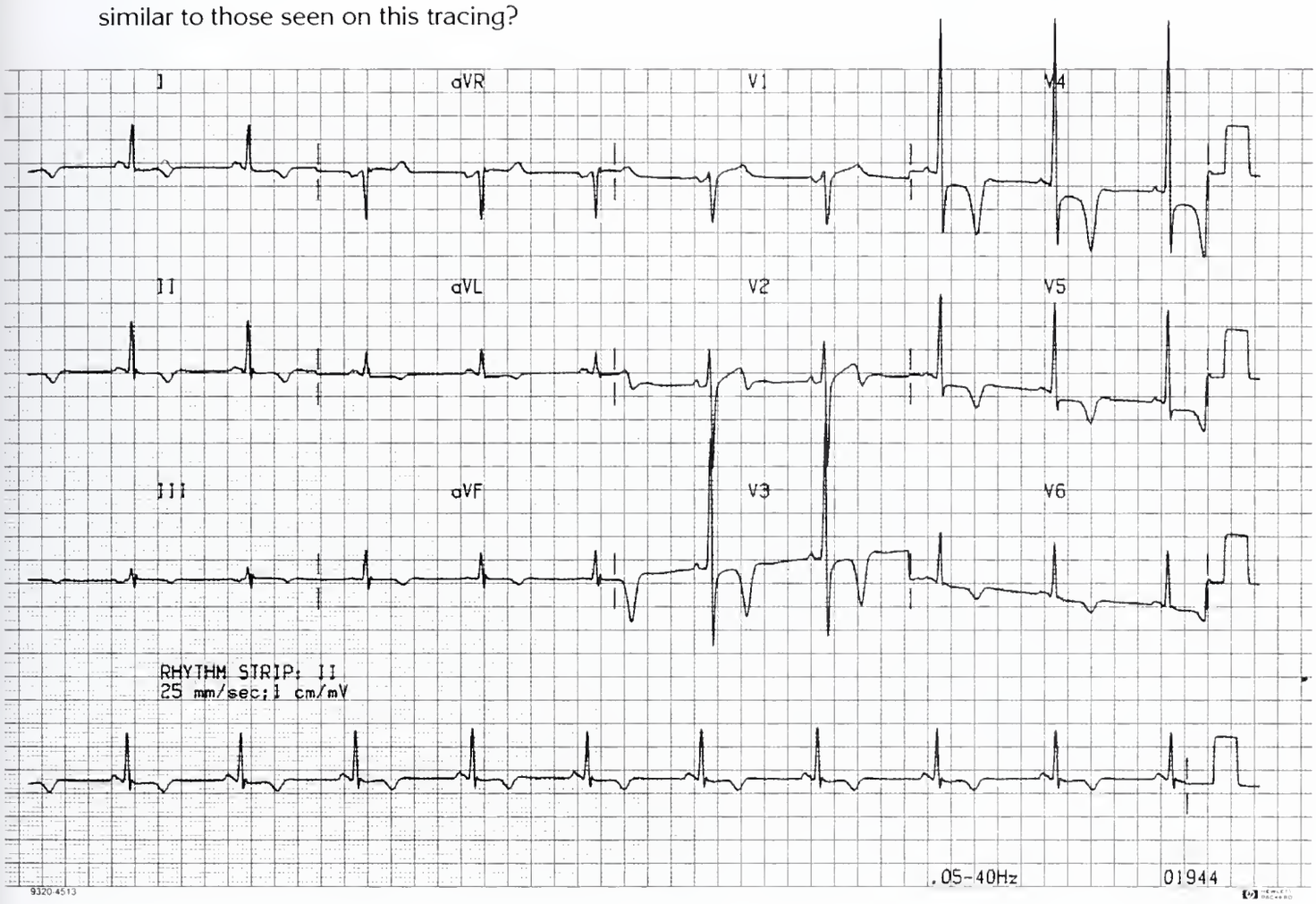
ELECTROCARDIOGRAM OF THE QUARTER

The electrocardiogram demonstrated here was obtained during a routine physical examination of a 54 year old man who had no cardiovascular symptoms and had a normal physical examination. During questioning about his past health he volunteered that five years previously he had an electrocardiogram taken which was said to have been abnormal. He did not know the details of this abnormality and no followup occurred at that time. Three years after this tracing was obtained he began to complain of aching in the right arm associated with an uncomfortable sensation in the

left chest. The electrocardiogram was unchanged. These symptoms were occasionally during exercise and stress. A coronary angiogram and left ventriculogram was made.

Questions:

1. What are the causes of T wave abnormalities similar to those seen on this tracing?
2. Given the history and probable duration of this man's electrocardiographic abnormalities what do you think is the most likely etiology of these T wave abnormalities?
3. What do you suggest the coronary angiograms demonstrated?



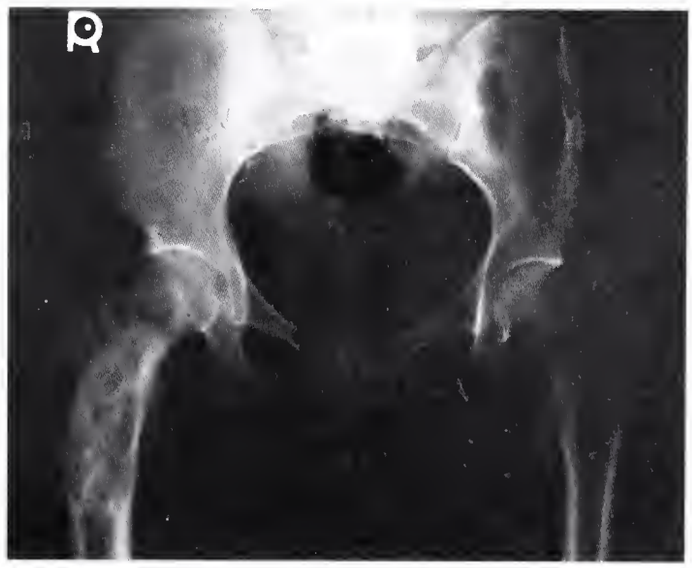
X-RAY OF THE QUARTER

The x-ray shows a single AP view of the pelvis with both hips on a 21 year old Caucasian female with right hip pain. There was no history of trauma and no fever. *Radiographic findings:* There is expansion of the neck and proximal aspect of the right femur with deformity. There is discontinuity of the medial cortex of the neck of the femur from an old fracture. Presence of sclerotic spongiosa with intervening areas of radiolucency are noted in the affected portion of the femur. There is a narrow zone of transition. No periosteal reaction, soft tissue mass or soft tissue calcifications are noted. There is also presence of a "ground-glass" appearance of the right acetabulum and adjoining portion of the iliac wing with expansion of the bone and absence of the trabecular pattern which is especially evident on the comparison with the corresponding portion on the left side.

A technician 99m MDP bone scan showed intense activity in the right pelvis and right femur corresponding to the radiographic findings described above.

The sclerosis and deformity of the left ilium is secondary to old surgery.

What is your diagnosis?



Tail Cove ag
S rc ded In My tery

Coverages of $100,000 or less were thought to be adequate by many physicians only five or ten years ago. What will be adequate in the next decade at today's limits of $1 million plus? Nationally, physician verdicts have skyrocketed by 255% during the last five years alone. Trends also indicate that larger "medical malpractice" awards seem to result from suits brought long after an alleged event.

Times Change

Inflation shrinks dollar values. Consumer attitudes change. New legal doctrines are being forged. Just a few years ago who gave much thought to a claim for granting staff privileges, or a claim for an unwanted birth. And what about supplementary costs. In Alaska, prejudgment interest is added by the court to the verdict handed down by the jury. Lets face facts, juries evaluate damages on today's and not yesterday's dollar values. Yet, Alaska law provides for an annual rate of 10½% interest computed from the date of injury. Think what happens to your dollar obligations when a suit is brought five years after you treated a patient with the trial held three to four years later. Also unique to Alaska is a court procedure authorizing plaintiffs to collect their court costs. That's generally another 10% on top of the verdict.

So what do we do when we purchase professiona liability to protect ourselves from "medical malprac tice" claims. Many physicians given a choice woul still choose traditional occurrence coverages. It only human nature to hang on to traditional concepts The fixed price tag and a piece of paper with n strings attached.

Pitfalls of Occurrence Insurance

But popular impressions are at odds with reality whe selecting professional liability insurance. Becaus the traditional occurrence coverage ties everythin -coverage language and dollar protection to th alleged injury date, it may fall short in providing yo with adequate protection for the late filed suit. Its problem commonly known as the "long tail of medica malpractice."

Discovery policies in the form of claims-mad coverages have remedied many shortcomings c occurrence policies as the coverage and premiun rates are geared to the discovery date on which th claim surfaces and that is an essential difference i

eping up with your needs and avoiding speculative cing. Frankly, it makes good business sense to guge the market place on what is happening today d not for the unknowns and uncertainties we may e tomorrow.

the horizon, we see discovery type coverages in ny fields other than for the professions of medie, law and architecture. Discovery policies will ant protection for any claim regardless when the ident occurred. You will be able to change from e insurance company to another and not worry out the late claim because the company holding ur policy at the time a claim is made will honor it.

day's claims-made policies are very similar except at the event must have occurred following the date hen your first claims-made policy went into effect. herwise, with each renewal policy your coverages e updated and you can select the appropriate llar protection you need. This avoids planning ead for the next decade.

aims made coverages have taken on a new rection since they were first introduced. Resistence ew from the lack of guaranteed future protection. In me cases protection was limited to a number of ars. With some you were not necessarily assured ntinued protection when you terminated your licy. In return, many physicians responded negively to claims-made because of uncertain condinal insurance pegged as ["tail coverage"]. Today, tail coverages"] are fairly uniform. Guaranteed otection with no strings attached. These coverages ant you continued protection from the moment you rminate your claims-made coverages. In many spects the ["tail coverage"] is an occurrence licy.

Tail Coverages Shrouded in Mystery

Tail coverages"] are very important to you. And not just for your continued protection. They play a very critical role in determining your overall insurance costs. Yet ["tail coverages"] are shrouded in mystery. And with good reason. Terms, costs and guarantees still differ from one insurance company to another. As the rates for these coverages are generally not published up front, the true cost of claims-made is often misunderstood.

With the exception of certain entitlements where premiums are waived for disability, death or retirement, ["tail coverage"] costs are basically nothing more than an updated revision of premium needed for each year you had a policy less the accumulation of yearly premiums paid.

This complicates rate comparisons when shopping for professional liability insurance. Some companies may "skew" their rates so as to have an attractive front end cost. Some may level off artifically low compared to what an occurrence policy would be charged. But in the end ["tail coverage"] costs tend to balance the scale for claims-made premiums. Generally speaking, the better the claims experience of the insurance company, the lower the cost of ["tail coverages"].

MICA began offering two types of claims-made several years ago. The conventional "pure" claims-made and the "modified" claims-made. So far, the "modified" form, which is priced to a near scale of occurrence coverages, has prepaid nearly all costs for ["tail coverages"].

What many do not know, and certainly not unique to MICA are ["Nose coverages"]. Instead of buying ["tail coverages"] from your insurance company, you can generally opt to purchase the appropriate MICA renewal rate as if you had MICA insurance all along. MICA would then be responsible for those claims which might be made against you for the time you had another claims-made policy.

Read your policy . . . . . Understand your cost.

MICA Medical Indemnity Corporation of Alaska

4441 BUSINESS PARK BLVD./BLDG. N
ANCHORAGE, ALASKA 99503
TELEPHONE: (907) 563-3414

SUPERSCOOPS BY THE SOOPERSNOOPS

One of the pair of our illustrious surgeons who over-imbibed one evening decided to improve the facial contours of the other. All went well, excessive subcutaneous tissue was excised and and neatly tucked up. But surgeon two, not too content, removed his sutures prematurely and all good work fell apart.

Speaking of surgeons - from ANMC comes word that their most eligible widower is getting a good bit of surgical attention.

Here's hoping we hear more from the new Health and Welfare Commissioner than we did the old one.

We understand Carla Hellekson is the nicest shade of white a tanned person ever got. What happened to the Hawaiian sun?

Is hypercapnia the latest form of anesthesia?

Four Alaska doctors now have second generation physician offspring. These have been seen working at ANMC, the Emergency Room at U of W and at the Neighborhood Center. Nepotism, nepotism.

Tom Wood is to be thanked for his fine help with our local hockey teams.

The apparent success of the Dimond Medical Emergency is an example of how one can fulfill a real need.

While back stabs and nasty gossips are really our style, we did hear the following tale from a local ICU unit. A nice patient, recovering from a MI was being visited by Father Peter. Suddenly he stopped breathing. Our devout Father immediately began the last rites. Nurses standing nearby piously bowed their heads as well. Said patient then opened wide his eyes, gave a shy smile and said "fooled you!" One nurse exclaimed, "why this is January 1st, not April 1st." Father Peter looked upward gratefully for a promptly answered prayer.

Who Are These Gals?

EDITORIAL

In this issue Alaska Medicine is publishing the 1st of a two-part paper by Dr. Jay Caldwell dealing with exercise energy kinetics and acid-base mechanisms. Logically the subject should form the basis for further exploration into two other spheres particularly relevant to Alaska: high altitude energetics and disease, and hypothermia, which are clearly interrelated and produce many complex and unresolved metabolic distortions.

Curiously, for example, a recent review in the AJM on the pathophysiology of high altitude sickness contains no mention of the concepts presented by Dr. Caldwell, in fact no mention whatsoever of anerobic glycolysis which simply must complicate the already complex acid-base maladjustments encountered with severe hypoxic muscular exertion.

In a 1981 Lancet article, the authors ascribe acetozolamide modification of high altitude sickness simply to a renal mechanism increasing H+ ions, offsetting hypoxic hyperventilation respiratory alkalosis, again ignoring any contribution to the H+ ion pool and pH from anerobic alkalosis of high altitude. Thus, the role of carbonic anhydrase inhibitions must be more pervasive than just at the renal level.

Hypothermia alone produces acid-base and other metabolic shifts, and of course hypothermia is relative. For example, moderate exercise can produce such significant recorded internal body temperature disparities as muscle 41°C, skin 30°C and liver 37°C, with resultant pH disparities of 7.34, 7.51 and 7.4 respectively; these must be exaggerated during subzero exertion and affect the anerobic threshold.

Alaska Medicine has a large readership knowledgeable about sports medicine, mountaineering and hypothermia. We welcome any complementary (or uncomplementary) papers or letters clarifying or disputing these confusing and conflicting pathophysiologic relationships.

Winthrop Fish, M.D.
Associate Editor

POST GRADUATE COURSES

June 3, 4
OTITIS MEDIA IN THE CHILD:

A one and a half day course covering recent advances in the understanding and management of this important condition. The guest speaker is Professor Charles Bluestone from the University of Pittsburgh, a nationally prominent authority on Otitis Media.

Credit - 9 hours Category I *

June 20 - 22
CRITICAL CARE MEDICINE SYMPOSIUM:

This course will be held over the summer solstice at Alaska Pacific University Campus on three afternoons and one evening. An innovative program has been devised which will enable a wide range of topics to be presented in depth through small group workshops. There will be a small number of planned lectures on subjects of more general interest. An evening session on June 21st will be followed by a midnight picnic. Guest faculty will include Dr. David Pierson from Harborview Medical Center and Dr. Peter Mansfield from the Children's Orthopedic Hospital, both of Seattle. Topics covered include: respiratory, pharmacology, blunt chest traumas, demonstration of the 2D electrocardiogram and pediatric trauma.

Credit - 14 hours Category I *

June 30 - August 6

Acute Neurologic Emergencies. This conference is to be held in Katmai National Park and is sponsored by The American Institute of Primary Care Medicine and the University of Arizona College of Medicine. There will be kayaking, fishing and wildlife conferences.

Credit - 24 hours Category I

August 6 - 13

Family Practice Review. This conference is to be held in Katmai National Park and is sponsored by The American Institute of Primary Care Medicine and the University of Arizona College of Medicine. There will be kayaking, fishing and wildlife conferences. For more information contact:

Richard F. Paris, M.D.
P. O. Box 209
Sun Valley, Idaho 83353

Credit - 24 hours Category I

August 11, 12

Summer Update Conference in Obstetrics & Gynecology *

August

The graduate School of Public Health, San Diego State University, San Diego, California, is now accepting applications from obstetricians, and other physicians interested in a career in thge field of Maternal and Child Health. Applications are being accepted for August 1983. The Training Program is of nine months duration. The Master of Public Health degree is awarded. Considerable effort is made by the Faculty to assist each student in career planning.

There is also available a special 21-month Training Program for pediatricians in the field of Handicapped Children.

Address inquiries to:
Helen M. Wallace, M.D.
Professor and Head
Division of Maternal and Child Health
Graduate School of Public Health
San Diego State University
San Diego, California 92182

September 23 - 25
Thermal Conference *

October 7, 8
Cadiology for Non-cardiologists *

October 5 - 8

International Skeletal Society Meeting 10th Annual Refresher Course. The Tenth Annual Refresher Course of the International Skeletal Society will be given October 5 - 8, 1983, in Geneva, Switzerland. Some 63 internationally known speakers will present the course. Registration fees in North America are: U.S. $50 for members; U.S. $350 for non-members; and U.S. $175 for those in training with verification. For further information contact:

MS. Janice Ford
39 Dunlin Way
Erial, New Jersey 08081

Credit - 25 hours Category I

*For information contact:
Judy Kyle
Education and Training Department
Providence Hospital, Pouch 6604
3200 Providence Drive
Anchorage, Alaska 99502
(907) 562-2211

LETTER TO THE EDITOR

Dear Editor:

This letter is in reference to the article on cold water near drowing and hypothermia which appeared in the November/December issue of **Alaska Medicine**. On page 108 the article recommends that a patient in cardiac arrest be countershocked with 200 watt/seconds of energy. In the protocols recommended by the state, on which this article was based, the recommended energy for this situation is 400 watt/seconds. I have spoken to Martin Nemiroff, M.D. regarding this discrepency and he advised me that he considers the latter more appropriate. I would appreciate a review to determine whether this was typographical error or whether the number was altered for another reason. Please advise me of your findings as information would be disseminated to individuals who have received either publication.

Cordially,
Matt Anderson, EMS Training Coordinator

REPLY:

Dear Mr. Anderson:

After corresponding with Tim Samuelson, M.D., he advised me of the following:

> Mr. Anderson is correct in pointing out that the article in **Alaska Medicine** recommended utilizing 200 watt/seconds to cardiovert ventricular fibrillation, while the original "Guidelines" printed by the State EMS office recommended 400 watt/seconds. I took it upon my self to make this change for the following reasons:
>
> There was much discussion at the time of the original Hypothermia Meeting in July 1981 among the participants regarding the energy to be used for cardioversion in the very cold patient (core temperature less than 85 degrees F.). Some recommended lower energy levels which might be less likely to injure the cold heart, while others thought that if cardioversion was attempted only once, it should be done with maximum energy. At the same time the American Heart Association came out with new guidelines recommending lower energy levels for cardioversion. To minimize the possibility of further damage to the cold heart and to be more consistent with current American Heart Association recommendations, I made the change which Mr. Anderson described.

In response to Mr. Anderson's letter, I have discussed the issue with the other authors of the paper. Everyone agrees that there is no good evidence for either energy setting and that studies are needed to clarify the question. In fact, Dr. Mills' group is proposing such a study in Fairbanks. The authors felt that until more definitive information is available, if one attempted cardioversion only once, maximum energy would afford the best chance of successful defibrillation. Therefore it is recommended that an energy level of approximately 400 watt/seconds be used in the situation described on page 108 of the article where one is defibrillating the very cold heart one time only.

I appreciate Mr. Anderson pointing out this inconsistency between the State of Alaska Guidlines and the **Alaska Medicine** article. I hope my answer has clarified the issue.

Sincerely,
Tim Samuelson, M.D.

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Alaska Medicine publishes original material of interest to our subscribers. The Editor invites brief letters, commenting on articles published in recent issues, as well as announcements of postgraduate courses, and other items of interest to our subscribers.

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Submit manuscripts in duplicate to the Editor:

William H. Bowers, M.D.
ALASKA STATE MEDICAL ASSOCIATION
4107 Laurel Street #1
Anchorage, Alaska 99504

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__ Two complete sets of manuscripts, double-spaced throughout on 8½ X 11 paper with 1½" margins all around.

__ Arrange manuscript as follows: (1) Title page including title, author(s), and location by city and state, institution at which work was done, address to which reprint requests should be sent. Authors will be sent three complimentary copies of the Journal in which their work appears. (2) Abstract of less than 150 words using no abbreviations, footnotes and references. (3) Text including introduction, methods, results and discussion. (4) Acknowledgements. (5) References, tables, figure legends and figures.

__ References are cited in the text by numerals enclosed in parentheses. The reference section is typed double-spaced on sheets separate from the text and is numbered consecutively in the order in which references are cited in the text. Included are last names and initials of all authors, title of article, name of publication, volume, inclusive pages and year published. Abbreviations will conform to those used in **Index Medicus**.

__ Tables are typed double-spaced on separate sheets, with the table number centered above the table and explanatory notes below the table.

__ The figure title and caption material appear in the legend. Figure legends are typed double-spaced on sheets separate from the text. Figures are numbered in consecutive series in the order cited in the text. Sufficient information is included in the legends to interpret the figures without reference to the text.

__ Two complete sets of unmounted illustrations including photographs (black and white) should be submitted of uniform size not larger than 5 X 7 inches. These must be clearly labeled on the back, lightly in pencil, to indicate first author's name, figure number and top of illustration. Radiographs and photographs must be of high contrast.

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Date

ALASKA: PAST, PRESENT & FUTURE
1983 ANNUAL MEETING
OF
ALASKA STATE MEDICAL ASOCIATION
TENTATIVE SCHEDULE

FRIDAY, MAY 27, 1983

8:00 - 5:00	Registration	Reluctant Lobby
9:00 - 12:00	Council Meeting	Reluctant Dining Room
11:00 - 12:00	Exhibit Set-up	Alpha Cinema
2:30 - 5:30	Scientific Session	Alpha Cinema
2:30 - 3:30	"The Aurora Borealis" - Syun-I Akasofu, Ph.D.	
3:30 - 4:30	"Kennicott, Copper and Cordova" - Loni Jensen	
4:30 - 5:00	"History of Cordova" - Film	
6:00 - 7:00	Cocktails and hors d'oeuvres	The Alaska Bar
7:00	Seafood Extravaganza	Elks Club

SATURDAY, MAY 28, 1983

7:30	Breakfast	Open
7:30	Registration	Reluctant Lobby
8:00 - 9:30	ASMA Business Meeting	Alpha Cinema
9:45 - 12:00	Scientific Session	Alpha Cinema
9:45 - 10:30	"Recent Trends in Medical Malpractice" - David Gould, Esq.	
10:30 - 11:15	"Management of Pulmonary Problems in the Critical Care Unit" - S. Lakshminarayan, M.D.	
11:15 - 12:00	"Gas Gangrene, An Ever Present Danger" - Claude Hitchcock, M.D.	
12:00 - 1:30	LUNCH - Open	Elks Club
1:30 - 3:00	Scientific Session	Alpha Cinema
1:30 - 1:50	"Medical Findings of the Barrow Eskimo Site" - Wayne Myers, M.D.	
1:50 - 2:10	"Anthropology of the Barrow Eskimo Site" - Jack Lobdell, Ph.D.	
2:15 - 3:00	"Lancets of Stone: Traditional Methods of Surgery Among the Alaska Natives" - Robert Fortuine, M.D.	
3:15 - 5:00	ASMA Business Meeting	Alpha Cinema
5:30	COOKOUT	To Be Announced

SUNDAY, MAY 29, 1983

7:30	Breakfast	Open
8:00 - 9:30	ASMA Business Meeting	Alpha Cinema
9:45 - 12:00	Scientific Session	Alpha Cinema
9:45 - 10:30	"Informed Concent/Being on Trial" - David Gould, Esq.	
10:30 - 11:30	"Physiology of Hypothermia" - John Bligh, D.Sc.	
11:30 - 12:00	"Risk vs. Benefit of Modifying Daily Diets to Prevent Chronic Disease...U.S.Dietary Goals/Guidelines... Anorexia Nervosa & Athletica/Bulimia" - Sally Weerts, M.S.R.D.	
12:00 - 1:30	LUNCH - Open	Elks Club
1:30 - 3:00	Scientific Session	Alpha Cinema
1:30 - 3:00	"The Alaska-China Medical Trip" - David Johnson, M.D., Sam McConkey, M.D., (video tape) "China in 1945 and 1982" - Paul Isaak, M.D.	
3:15 - 5:00	ASMA Business Meeting	Alpha Cinema
6:30 - 7:30	Cocktail Hour	Respective Meetings
7:30 -	College of Surgeons Annual Meeting "Current Status of Surgery in Breast Cancer" - Claude R. Hitchcock, M.D.	Reluctant Dining Room

7:30 -	Alaska Academy of Family Physicians Annual Meeting Speaker: Gerald R. Gehringer, M.D.	The Club
7:30 -	et al Chowder Feed	Elks Club

MONDAY, MAY 30, 1983

7:30	Breakfast	Open
8:00 - 9:30	ASMA Business Meeting	Alpha Cinema
9:45 - 12:00	Scientific Session	Alpha Cinema
9:45 - 10:30	"Experiences of Medical Malpractice Panel in Massachusetts" - David Gould, Esq.	
10:30 - 11:30	"Insulin Pumps in Alaska" - Jeanne Bonar. M.D.	
11:30 - 12:00	"Recent Advances in Diet as a Component of Treatment Programs...Endocrinology: Diabetes Mellitus... Gastroenterology: Nutrient Intolerances" - Sally Weerts, M.S.R.D.	
12:00 - 1:30	LUNCH - Open	Elks Club
12:00 - 1:30	ALPAC Annual Meeting	The Club
1:30 - 3:30	ASMA Business Meeting	Alpha Cinema
3:30 - 5:30	"Risk Management/Loss Prevention Seminar" - Attorneys and Representatives of MIEC, Brad Cohn, M.D.	
6:30 -	Transportation to President's Banquet	Depart from Reluctant
7:30	President's Banquet	Black Sheep Restaurant
8:30	Award Presentation and Exhibit Contest Drawing	
10:00	Return Transportation to Reluctant Fisherman	

TUESDAY, MAY 31, 1983

8:00 - 12:00	OPEN - local activities	
9:00 - 11:00	ASMA Council Meeting	Reluctant Dining Room
10:00 - 11:00	Cannery Tour	

Plane Departure - Noon

SPEAKERS:

Syun-I Akasofu, Ph.D. Professor of Geophysicis, University of Alaska, Fairbanks
John Bligh, D.Sc. - Professor of Animal Physiology, University of Alaska, Fairbanks
Jeanne Bonar, M.D. - Endocrinologist, Private Practice, Anchorage
Brad Cohn, M.D. - Pediatrician, Private Practice; Chairman of Board, Medical Insurance Exchange of California, San Francisco
Robert Fortuine, M.D. - Family Physician, Alaska Native Medical Center, Anchorage
Gerald Gehringer, M.D. - Family Physician, Private Practice; President, American Academy of Family Physicians, New Orleans
David Gould, Esq. - Trial Attorney, Ficksman & Conley, Massachusetts
Claude Hitchcock, M.D. - Chief of Surgery, Hennepin Medical Center; Professor of Surgery, University of Minnesota
Paul Isaak, M.D. - Family Physician, Private Practice, Soldotna
Loni Jensen - Local Author, "The Copper Spike"
David Johnson, M.D. - Pediatrician, Private Practice; Ketchikan
S. Lakshminarayan, M.D. - Professor of Medicine, University of Washington, Seattle
Jack Lobdell, Ph.D. - Enviornmental Archeologist, Anchorage
Sam McConkey, M.D. - Ophthalmologist, Private Practice, Fairbanks
Wayne Myers, M.D. - Director, WAMI Program, University of Alaska, Fairbanks
Sally Weerts, M.S.R.D. - Dietician, Professional Nutrition Counseling, Anchorage

ANSWERS TO PHYSICIAN SELF ASSESSMENT

1. *A, B, C, D, E, F* - Neufeld ND, in Current Pediatric Therapy, 10th ed., Gillis SG, Kagan BM, eds. 1982.
2. *E* - Nelson JD, Kusmiesx H, Jackson LH, Woodman E, Peds 65:1125-1130, June 80.
3. *C* - Gislason T, Noronha RFY, Gregory JG, J Urol 124:533-534, Oct 1980.
4. *F* - Oski F, Peds 66:168-70, 1981.
5. *B* - Dallman PR, Siimes MA, Stekel A. Am J Clin Nurt 33:86-118, 1980.
6. *A, C* - MMWR, Feb 12, 1982 and Peds, June 1982.
7. *B* - Cherry JD, in Textbook of Pediatric Infectious Diseases, Feign RD, Cherry JD, eds: 1981, p. 98.
8. *C* - Urology Clin of N Am, 1980.
9. *C* - Austin G, quoted in Harvard Medical School Health Letter, July 1982. 9:1.
10. *True* - "Red Book" Update, Peds 70:819-22, Nov. 1982.

ANSWERS TO
ELECTROCARDIOGRAM OF THE QUARTER

1. Probably the most common cause of marked T wave abnormalities seen in hospital practice is ischemic heart disease with subendocardial infarction. These abnormalities usually are transcient and tend to appear several hours or days after the injury and last from several days to weeks. They often are not accompanied by an alteration in the QRS complexes. Many times a history of chest pain or angina equivalent may be obtained. Other causes of widespread T wave abnormalities include:
   Cardiomyopathy, obstructive or idiopathic
   Mycardial tumors including lymphoma
   Myocarditis
   Mitral valve prolapse
   Pericarditis
   Cerebral infarction and head injuries
   Left ventricular hypertrophy
   Normal variant
2. Since these T abnormalities may have been present for some time and he had a normal physical examination without evidence for hypertension, heart murmurs, syncope or mid-systolic clicks several etiologic possibilities can be considered remote. Left ventricular hypertrophy, pericarditis, cerebral infarction, subendocardial infarction, myocarditis, and mitral valve prolapse are not likely causes. Idiopathic cardiomyopathy, myocardial tumor and normal variant are high on the list.
3. This man had coronary angiography principally because of the chest pain and inability to interpret a stress test. The angiograms demonstrated entirely normal coronary arteries without either atherosclerosis or congenital abnormalities of the coronary artery distribution. There was no evidence for intramyocardial tumor or contraction abnormalities of the left ventricle. The ventriculogram demonstrated normal filling, normal intracavitary pressures and perfectly normal emptying without peculiar movements of the mitral valve leaflets. No mitral regurgitation was seen. The left ventricle was of normal thickness and movement of the interventricular septum was also normal. Consequently it appears that this individual has a strikingly abnormal "normal variant" of his T waves.

ANSWERS TO X-RAY OF THE QUARTER

Diagnosis: The findings are classic for fibrous dysplasia. In view of the patient's age, absence of trauma, absence of fever and findings in multiple bones, other differential diagnosis such as osteomyelitis or neoplasms are considered unlikely.

Discussion: Fibrous dysplasia is a fibro-osseous aberration of the skeletal system. The etiology is unknown. Both sexes are affected. Common period of clinical presentation is in the first two decades of life with the highest incidence between three and 15 years of age.

The fundamental abnormality is replacement of medullary bone by one or more areas of fibrous tissue within which an osseous element may develop. It may be monostotic or polyostotic. Leontiasis ossea is a variation in which facial bones and the base of the skull are affected.

Albright's syndrome consists of florid cases of skeletal involvement accompanied by sexual precocity and skin pigmentation. This is commonly observed in females.

Common sites of involvement are pelvis, major long bones (particularly the femora), skull, jaw and thorax, although any part of the skeleton may be affected. Although the polyostotic form is usually bilateral, there is a tendency for unilateral predominance.

Radiological Findings: In the bone destroying phase, the lesions are radiolucent, appearing as cyst-like areas which are characteristically surrounded by a thick sclerotic border, the so-called "rind" sign. The spongiosa is widened and the cortex thickened and expanded. A ground-glass appearance of the bone is common early in the disease. In the bone forming phase, zones of new bone are distributed irregularly but mainly confined to the spongiosa. Very often both bone forming and bone destroying lesions are visible simultaneously in the same patient and even in the same bone. Such involvement of the proximal femur is common such as in this patient, leading to the so-called "Shepherd's Crook deformity", which is classical for fibrous dysplasia. Malignant metaplasia is distinctly unusual.

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- Studied in over 200 clinical trials involving over 10,000 patients.[13]
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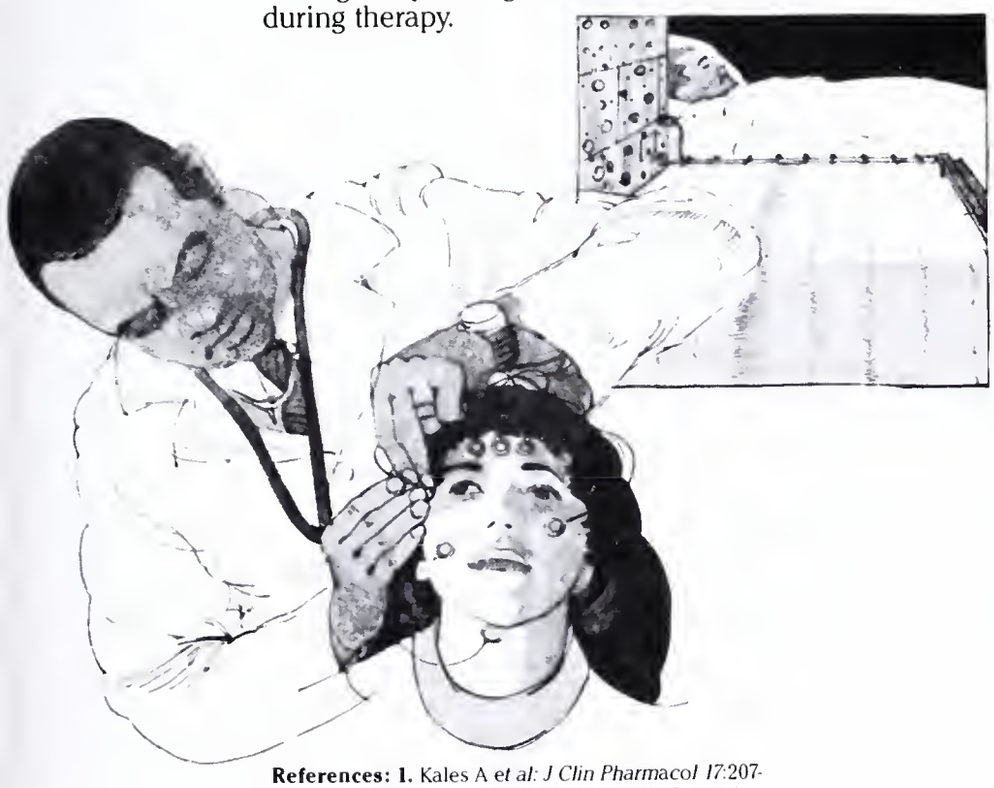
- Contraindicated in patients who are pregnant or hypersensitive to flurazepam.
- Caution patients about drinking alcohol, driving or operating hazardous machinery during therapy.



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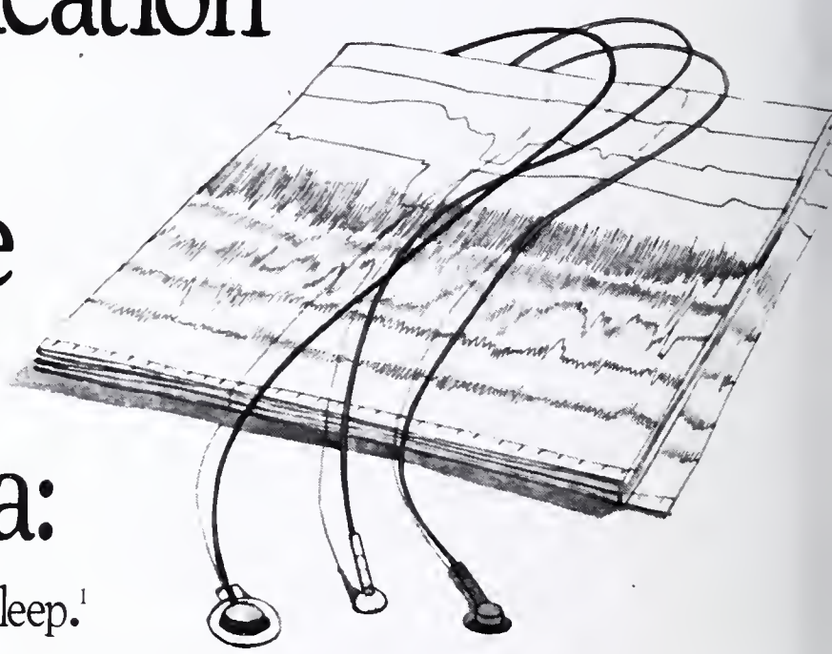

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Volume 25, Number 3
July/August/September 1983

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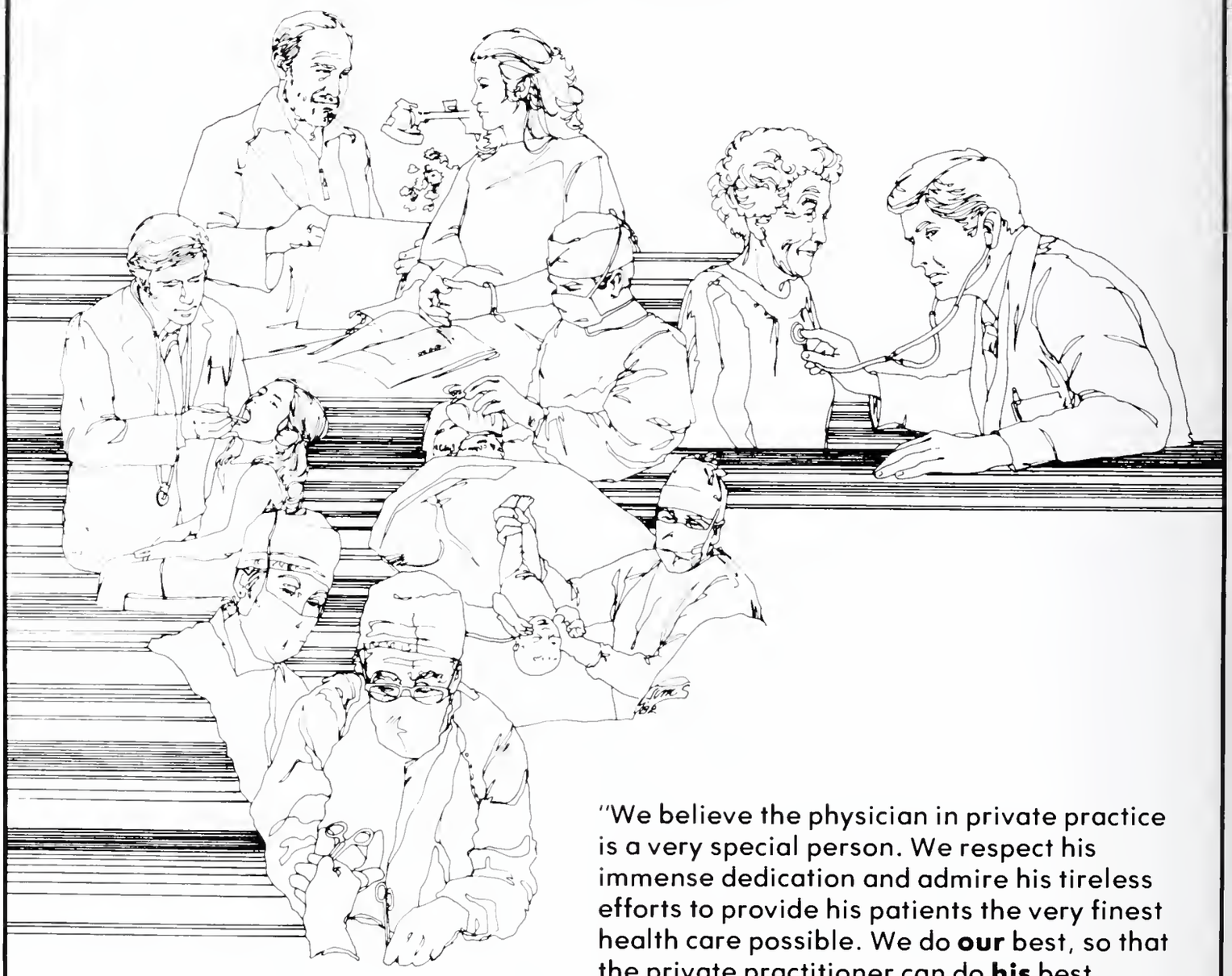

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Official Journal of the Alaska State Medical Association

4107 Laurel, Anchorage, Alaska 99504

Volume 25 July/August/September 1983 Number 3

ALASKA MEDICINE is the quarterly journal of the Alaska State Medical Association; Alaska Medicine, 4107 Laurel, Anchorage, Alaska 99504. *ALASKA MEDICINE* is printed by Northern Printing, Co., Inc., 655 Warehouse Avenue, Anchorage, Alaska 99501.

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THE CONSERVATIVE MANAGEMENT OF PRIMARY BREAST CANCER WITH TYLECTOMY, AXILLARY DISSECTION, PHOTONS, ELECTRONS, BRACHYTHERAPY, AND ADJUVANT CHEMOTHERAPY

Charles J. Sternhagen, M.D.

Although modified radical mastectomy remains the standard method of treating primary breast cancer in the United States, there is interest in the use of simple excision of the lesion with axillary dissection followed by radiation therapy as an alternative.

This conservative method can be used not only as an alternative to modified radical mastectomy when the patient chooses not to have a mastectomy, but also when the tumor is too large for surgical excision or the patient is too ill with ancillary disease to undergo a mastectomy. Therefore, conservative tylectomy (lumpectomy) plus radiation therapy may be useful as an alternative to mastectomy in all stages of breast cancer, although large fungating lesions are usually removed prior to irradiation.

The general plan usually used is to perform conservative surgery with tylectomy followed by axillary dissection. Then photons are used for the breast treatment. Either electrons or photons are appropriate for the internal mammary and supraclavicular nodes. The breast and regional nodes are carried to 4500 to 5000 rads in five to six weeks and two weeks later brachytherapy (radiation implant) is used to add 2000 rads in two days to the site of the tumor in the breast with an interstitial 192 Iridium implant. Electron boosts can also be used in place of the interstitial implant, but are less popular. Adjuvant chemotherapy is used if systemic disease is strongly suspected, as when axillary nodes are positive or when larger tumor masses are involved.

Presented at the Alaska State Medical Association Convention, Fairbanks Alaska, June 7, 1982

Historical Background

In 1894 Halsted and Meyer published their description of radical mastectomy for breast cancer, which subsequently became the standard operation in the United States. In 1895 Konrad Roentgen discovered x-ray, which was used for treating cancer that same year. Becqueral discovered radioisotopes in 1895 as well, and only three years later Madam Curie discovered radium. It is interesting to note that if Halsted and Meyer had published their work one year later then perhaps radiation therapy would have become the standard primary curative modality for early breast cancer in the United States. In Europe the use of radiation therapy to treat primary breast cancer has been popular for most of this century.

As early as 1929 Geoffrey Keynes published ten-year survival rates in patients with simple mastectomy and radium therapy of 49% with a 52% ten-year survival for those who underwent radical mastectomy with disease confined to the breast. In those patients with clinical spread to the axilla the ten-year survival rate with simple mastectomy and radium therapy was 27% compared to 26% for radical mastectomy alone. (1, 2)

Beginning in 1939 Vera Peters in Canada treated

patients with T_1 or T_2, N_O maligancies with excision and irradiation and performed a unique matched pair analysis in which each of 184 patients treated by excision of the lump and irradiation were matched by age, size of primary, and year of treatment to the patients treated by radical mastectomy and irradiation. These results carried out to 30 years do not show any significant difference in survival. (3, 4)

In 1940 in Helsinki, Mustakallio also used simple excision with irradiation in patients with clinically negative axillary nodes. The radiation therapy used at that time was inadequate according to our present standards and 25% of his patients developed local and regional recurrence by ten years, but a five-year survival rate of 79% and a ten-year survival rate of 61% was still obtained. (5)

The Guys Hospital study published in 1961 with ten-year results provides support for the use of conservative treatment, especially in those patients who have clinically negative axillary nodes by demonstrating that in the group there were no differences in survival or distant metastases. (6, 7)

In 1974, Rissanen reported a ten-year study on 866 patients showing similar results between conservative management and radical surgery combined with radiotherapy in treating stage 1 breast cancer. (8) In 1978, Calle at the Curie Foundation in Paris published another landmark study of 154 patients with operable and resectable breast cancer who were treated by lumpectomy followed by radiation therapy with an absolute survival without evidence of disease of 85% at five years and 75% at ten years. (9) In 1980, Pierquin published a series which was even larger and had even improved results overall by using implant therapy for the final boost dose of radiation therapy. (10, 11)

In January 1982 Amalric, Santamaria, and Robert published what will undoubtedly become the world premiere study of radiation therapy with or without primary limited surgery for operable breast cancer. Amalric's group reported on a 20-year experience of 3000 consecutive cases treated at the Marseilles Cancer Institute in France with excision of the lesion and radiation therapy without mastectomy. This series reports ten-year survival results which are equal to modified radical mastectomy results. (12)

METHODS

Tylectomy

The use of tylectomy or simple excision of the lesion is the best way to remove the lesion when the lesion is relatively small and its removal will not deform the breast significantly. In those patients who desire the best cosmetic result the lesion should be excised with careful reapproximation of the breast tissues and meticulous attention to plastic surgery repair principles. Since lesions which are treated with implant and radiation therapy rarely recur, a partial mastectomy or segmental mastectomy is unnecessary and the best cosmetic result comes from a careful simple excision of the lesion. If the lesion is relatively large and its removal would greatly deform the breast, then partial removal or needle biopsy is acceptable, reserving external beam and implant for eradicating the tumor instead of excision. If this method fails then a second implant can be performed or a later excision of the lesion remaining or recurring can be made. This ordinarily will salvage that 5% of cases in which the tumor recurs in the breast.

Axillary Dissection

Axillary dissection has been the primary method of controlling disease in the axilla for almost 100 years in the United States. Axillary dissection has also been the primary method for staging breast cancer during this entire period and can be performed relatively well even though the breast is not removed. Clips are used to mark the extent of the dissection. Axillary dissection should be performed with meticulous attention to removing all nodes possible and this will give the most scientific data available in determining the best strategy for long-term therapy planning. Occasionally a patient will refuse to have an axillary dissection; however, every effort should be made to encourage the patient to have this procedure for staging and to prevent persistent or recurrent disease in the axilla whenever possible. The patient must be informed that without the axillary dissection it will be difficult to scientifically plan for the possible future need for hormonal therapy or chemotherapy.

Photon and electron therapy

Radiation therapy with linear accelerators, cobalt, and betatrons utilize photons and electrons which provide for uniform homogeneous doses in the treatment region and are vastly superior to the old superficial and orthovoltage x-ray equipment formerly used. The ususal course of photon radiotherapy is 4500 to 5000 rads in five weeks or six weeks, to shrink residual masses and to eradicate microscopic subclinical disease. The use of photons provides an excellent preparation to brachytherapy or radiation implant therapy which follows after a two-week rest when the photon irradiation is completed. Electrons or photons may be used for regional nodes.

Brachytherapy

Brachytherapy, or radiation implant therapy, is radiation therapy performed with implant materials such as 192-Iridium in a temporary interstitial radiation implant to deliver a boost dose to the region from which the malignant tumor was excised. It provides a boost in the range of 2000 to 3000 rads or thereabouts as indicated. (13) Not only does brachytherapy improve the cosmetic result by incresing skin sparing while bringing a higher dose to the tumor region, it also yields local control rates as high as 95% and in addition, the use of brachytherapy in this setting is associated with the highest survival statistics currently available. (See figures 1-4)

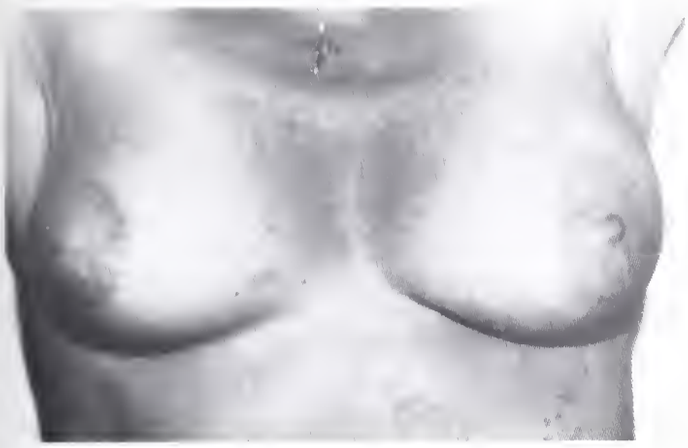

Fig. 1 - Stage T2 NO MO, left breast, 43 months.

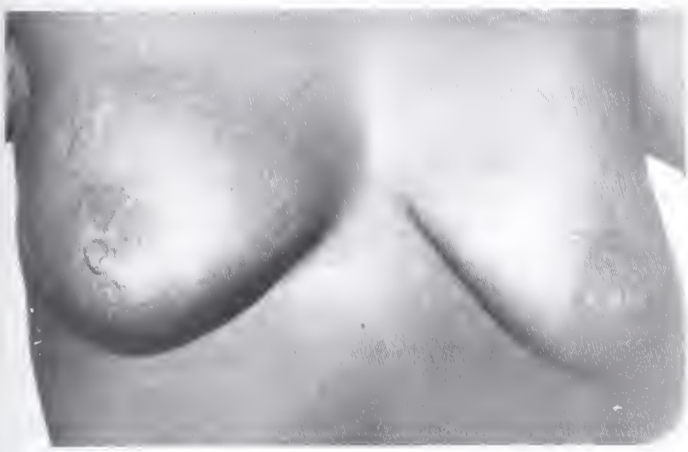

Fig. 2 - Stage T1 NO MO, right breast, 15 months.

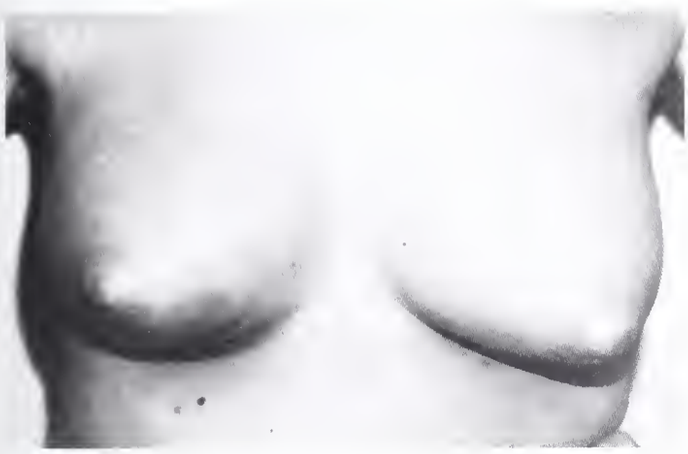

Fig. 3 - Stage T1 NO MO, right breast 14 months.

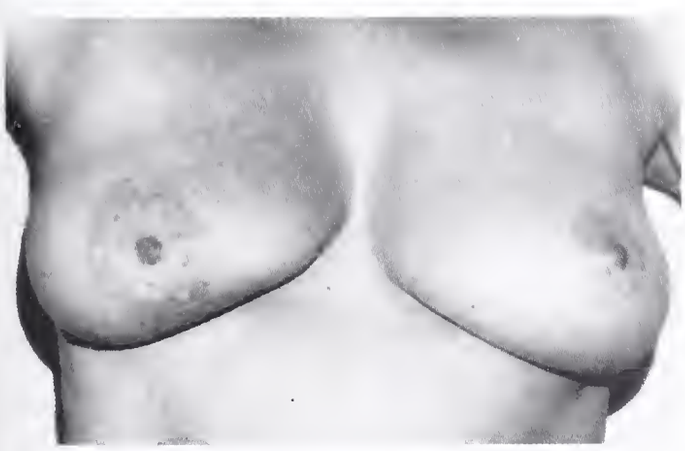

Fig. 4 - Stage T2 NO MO, right breast, 12 months.

Adjuvant chemotherapy or hormonal therapy

Some chemotherapists recommend adjuvant chemotherapy depending upon involvement of axillary lymph nodes with disease and thus an axillary lymph node dissection is absolutely essential in order to scientifically make this recommendation. If the tumors are relatively large or if they involve the chest wall or skin or any of Haagenson's grave signs, then there is a strong suspicion of systemic disease and it is customary to refer the patient to a medical oncologist for a decision regarding the need for the type of chemotherapy. It is also important to consider the use of chemotherapy prior to or during radiation therapy and therefore the medical oncologist and the radiation oncologist should see the patient in conjunction with the surgeon at the original time of diagnosis in order to formulate the best possible team decision tailor-made to the individual patient. The exact nature and type of chemotherapy as well as the sequencing is still under study and beyond the scope of this paper.

COMPLICATIONS

Complications occur in approximately 1% of the patients in most series and include arm edema, cough, pericarditis, and rib fracture. It is also important to mention that in older patients and in all of the more obese patients with less glandular tissue and more adipose tissue in the breast, there is an increased chance to develop more fibrosis than in patients with less adipose tissue in their breasts. This can cause slightly more breast asymmetry than would otherwise occur in the younger patients who have less adipose tissue and more glandular tissue in the breast. The ideal candidate who will receive the best cosmetic result is one in whom the smallest possible biopsy has been removed, the breast is thin and glandular tissue comprises most of the breast rather than adipose tissue. At five years the treated breast is generally found to be approximately 10% smaller than the untreated breast and this difference in symmetry is directly related to the size of the breast mass removed and is associated with the relative amount of adipose tissue, as mentioned above. Another complication consists of pain in the chest wall or breast region which does occur occasionally but is not common at the present time. It may be related to the cyclic hormonal changes and breast swelling that occur periodically. It also may be related to the type and amount of chemotherapy which is used subsequent to the radiation and therefore is probably a synergistic phenomenon seldom reported in this setting.

Carcinogenesis is a long-term risk occuring in less than 1% of adult patients receiving irradiation. The incidence of primary carcinoma occurring in the opposite breast among 1,234 patients is 4% in the patients managed without mastectomy and 18% in those managed with mastectomy (follow up time of 5-18 years) (16). However, the incidence at 25-40 years after radiation therapy (the latent period for carcinogenesis) may show an upward trend above 4% but it is

not known at the present time. The patients managed without mastectomy have the skin immediately overlying the internal mammary nodes irradiated in addition to the entire chest wall. This does suggest that some of the tumors which occur in the opposite breast may in fact be metastatic tumors which were originally present in the lymphatics of the dermis and subsequently migrated to the opposite breast. These data demonstrate well that at 5-18 years, there is a 4½-fold reduction in the development of another breast cancer in the opposite breast by the conservative management of breast cancer when compared to mastectomy.

SUMMARY

The steadily increasing use of tylectomy, axillary dissection, photons, and brachytherapy with adjuvant hormonal or chemotherapy when indicated provide a viable alternative to radical surgery, with local and regional control and cure rates similar to other methods. Adding brachytherapy boosts to the tumor bed has improved control cosmesis, and survival when compared to boosts with external beams alone (13, 14 15). The excision biopsy with axillary dissection provides the scientific data necessary for staging and for planning for future adjuvant hormonal or chemotherapy while significantly improving local control in the axilla when compared to those series where only a partial excision was performed and axillary dissection was not performed. Complication rates are lower when radiation therapy is not necessary in the axilla. The conservative management of breast cancer is associated with only a 4% incidence of breast cancer occurring in the opposite breast at five years compared to 18% occurrence of breast cancer in the opposite breast in radical surgery patients at five years (16).

Thus, the conservative method of treating breast cancer has become an alternative of interest to patients and physicians whenever patients refuse mastectomy, the mastectomy risk is high, or in locally advanced breast malignancy. The majority of patients now receiving the conservative method have very early lesions, but modified radical mastectomy also treats early cases with essentially equal survival statistics. Many patients who have more advanced disease with a high chance of matastases or with metastases already present frequently choose the conservative method as a logical approach since they understand they probably cannot be cured and are reluctant to submit to a mastectomy procedure. Nevertheless, most centers in the United States modified radical mastectomy continues as the most popular method and offers the advantage of a procedure that can be completed in one day when compared to the conservative method which requires approximately 6-8 weeks.

The medical profession owes a tremendous debt of gratitude to the Halsted method as well as to all breast surgeons who together, have extended the lives of millions of patients throughout the world with a surgical technique that has been one of the most startling breakthroughs in the history of medicine. It will most certainly be a long time before radiation oncologists and medical oncologists will be able to equal the tremendous amount of good surgeons already have performed over the past ninety years in terms of the number of patients cured who present with primary breast cancer.

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THE ANAEROBIC THRESHOLD IN CLINICAL MEDICINE:

CLINICAL DETERMINATION AND APPLICATION

(The Second of Two Parts)

Jay E. Caldwell, M.D., M.P.H.

In Part 2 of the Anaerobic Threshold in Clinical Medicine, Dr. Caldwell discusses the practical applications of the anaerobic threshold as a clinical tool. Part 1, published in the previous issue of Alaska Medicine, described the theoretical basis for the determination.

The Anaerobic Threshold Test

How do we dertermine the aerobic-to-anaerobic transition point? Once the lactate enters the blood it acts as a weak acid, releasing hydrogen ions into the stream. They are buffered quickly. Circulating bicarbonate is the major buffer system. As a result of its acceptance of hydrogen ions, biocarbonate becomes carbonic acid, which rapidly forms CO_2 and water. The water continues to circulate and the CO_2 leaves the blood when it reaches the lungs, where simultaneously new oxygen is picked up to replace that used in the cells.

Air entering the lungs has a proportion of oxygen and carbondioxide which is related to its atmospheric composition, but air leaving the lungs has less oxygen and more CO_2 reflecting the processes occuring in the cells. The increased amount of CO_2 is generally that which has been produced in the mitochondria. Once the lactate threshold is breeched the CO_2 released from the buffering of lactic acid by bicarbonate will be added. Thus, the ratio of carbon dioxide excreted to oxygen absorbed (known as the Respiratory Exchange Ratio or RER) will increase, but more importantly the rate of ventilation (both faster and deeper breaths) rises. This is another area of debate in research circles: the actual cause of the hyperventilation that seems to coincide with the anaerobic (lactate) threshold.

The ventilatory center located deep within the brainstem is controlled by the level of carbon dioxide in the blood. When we swim underwater holding our breath we have to surface to breathe not because we run out of oxygen, but because carbon dioxide has built up to levels which we can no longer tolerate. Thus hyperventilation before attempts at swimming long distances underwater may "blow off" more than the usual amount of CO_2, but the oxygen carried by the blood cannot increase, since it is normally fully saturated. Blood oxygen will decrease at the normal rate while carbon dioxide will rise, but because it started from a lower level, we may pass out from lack of oxygen to the brain long before the carbon dioxide forces us to breathe.

Ventilation, when it rises out of proportion to the increase in workload as measured by the oxygen consumption, is an excellent indicator that the anaerobic threshold has been exceeded. *Therefore, by graphing ventilation against workload (or VO_2 or pulse) during an exercise test, we can accurately and reliably determine the anaerobic threshold.* If desired the test can be terminated at this point, although in well motivated and healthy subjects we can continue to maximum. In research situations the anaerobic threshold is often determined by drawing intermittent blood samples for measurement of lactate. Numerous careful studies, however, have shown that the non-invasive evaluation of "gas exchange" data gives almost identical values in most people.

In the clinical determination of the anaerobic threshold, several provisos are nesessary. First, the

exercise levels of the early stages of the GXST must be sufficiently below the presumptive anaerobic threshold that warm-up and adaptation to the test can be achieved purely aerobically. One may easily overestimate the aerobic capacity of out of shape individuals; in some chronically ill patients any effort beyond recumbancy may be anaerobic.

Next, if the anaerobic threshold determination is to be used for exercise prescription or training modification, the mode of testing should simulate the mode of exercise as closely as possible. This is not difficult for cycling, jogging, walking, and cross-country skiing, but for swimming the data is not as valuable. Remember VO_2 max measures *all three* components of oxygen delivery; the anaerobic threshold mirrors the function of exercising muscle.

Finally, because muscle fuel metabolism can be readily modified by diet, unusual carbohydrate consumption immediately prior to a test may tilt the balance towards anaerobic metabolism. If anaerobic threshold information is to be applied to normal training situations, it would be best to test a subject under usual dietary conditions.

Almost any slowly progressive "ramp" testing protocol can be used. Stages do not need to be long as long as the load augmentation is gradual and does not result in sudden changes in exercise patterns which might cause discrete changes in muscle recruitment patterns. For example, the decision must be made prior to testing whether a walking or a running protocol is to be employed.

On the treadmill load change should be velocity related, not grade related, since we usually alter training intensity by speed change. Once beyond the anaerobic threshold increases in grade at submaximum speeds will result in the most accurate determination of VO_2 max. When using a cycle ergometer it is best to fix the pedalling speed (at 60-90 rpm) and alter the resistance progressively. For swimming tests gradually faster 50 or 100 yard swims can be made, obtaining blood samples for lactate after each, or using post-swim oxygen uptake measurements for backward extrapolation.

When determining the anaerobic threshold from ventilation data rather than from blood lactate, one must consider that although ventilatory tolerance to CO_2 and muscle-to-blood diffusion of lactate may be correlated, there is no cause and effect relationship. For example, swimmers who train by decreasing their frequency of breathing are actually increasing their toleance to high blood CO_2 levels. During swimming the energy required to turn the body to get air can be rechanneled into propelling it forward faster. Muscle enzyme systems are not affected by such training. Thus, ventilatory and lactate thresholds are dissociated.

Recent investigations suggest that endorphins also underlie tolerance to high levels of CO_2, which explains why such tolerance is trainable. The body simply produces more of the necessary endorphins.

Implications and Applications of The Aerobic Threshold Test

To prescribe a training level, we can use the heart rate which was recorded at the time the aerobic-anaerobic transition occurred. Exercise performed at a level near, but not higher than this heart rate will primarily affect aerobic processes, and therefore lipid metabolism. It is thought that loss of body fat will occur more readily at exercise intensities below the anaerobic threshold, while training at higher intensities will increase maximum performance more. This is only a hypothesis but if so would be important in the treatment of obesity with exercise.

The relative intensity of the anaerobic threshold varies among individuals. Those who are in good "condition" will continue to function aerobically much futher into their total effort than will those who are not. Although this reflects the relative effectiveness of one's metabolic enzyme system systems, one's natural endowment of muscle fiber types also plays a role.

Type II (fast twitch or white) fibers, which contract quickly, powerfully, and without the need for a large immediate supply of oxygen, have lower aerobic capacities and thus cross the aerobic threshold rather early. Type II fibers predominate in the muscles of the strong athletic person who is particularly good at sports requiring either great speed or strength. On the other hand, endurance athletes have a predominance of type I (slow twitch or red) fibers which have an enzymatic profile that contributes to a late crossing of the anaerobic threshold. The ratio of fiber types is genetically determined and apparently is not alterable with training. Nonetheless, endurance training aimed at augmenting aerobic metabolic processes can shift the anaerobic thresholds of both fiber types to higher levels. Not only are the anaerobic threshold and the VO_2 max icreased with aerobic training, but the threshold seems to shift to a higher relative position within the new, higher VO_2 max.

Anaerobic conditioning, as exemplified by strength training may be detrimental to aerobic potential. This is due to the fact that hypertrophy of muscle, which occurs rapidly in some, will increase the volume of the muscle cells without increasing either the concentration or number of mitochondria, or the blood supply. These changes can slow the transfer of oxygen from blood to the metabolic machinery of the cell, thereby diminishing aerobic capacity.

The maximum rate of energy consumption is specific to both test mode and muscle group; so is the anaerobic threshold. Thus, swimmers and rowers who, tested in their natural athletic habitats may have very high VO_2 maxs and anaerobic thresholds, will not do as well on a treadmill or a cycle ergometer as will runners and cyclists. The converse of this is even more striking, but this is partly due to the skill necessary for effective swimming and rowing, rather than differential training effects in the muscle groups of each group of athletes.

The anaerobic threshold then is primarily determined by unrelated factors: an individual's state of

health and fitness, his genetic muscle fiber pattern, and the method of testing. Nevertheless, it seems to reflect quite directly the capacity to utilize aerobic metabolism during work and the actual chemical processes taking place in active tissue. This is in distinction to the VO_2 max which measures not only this component of the energy train, but also ventilation and circulations. Ventilation and circulation will improve very little per se in the healthy individual, and since they are the major determinants of the VO_2 max, even large improvements in muscle metabolic capacity (e.g. 50-100%) will not augment the overall VO_2 max by more than 10-25%. Therefore any increase seen in VO_2 max is almost entirely due to altered metabolic function. The anaerobic threshold test evaluates this much more directly.

It would be helpful to have a non-invasive field test for anaerobic threshold determination that required neither gas analysis nor the sampling of blood, but because the most accessible physiological variable, i.e. heart rates, vary linearly with increasing workloads, this may not be possible. In well-trained runners a "maximum steady state" can be estimated from race performances, but this is of little relevance in most clinical situations.

Attempts to correlate the threshold with subjective ratings of exercise intensity have produced consistent results for groups, but because of large intra-group variability, application to individuals is problematic. Perhaps the famous "talk test" is the best subjective measure of the anaerobic threshold available, in as much as it may represent subjective awareness of the objective ventilation threshold.

Summary

Observation of the exercise intensity when metabolism shifts from predominately aerobic to both aerobic and anaerobic can provide valuable information about performance capacities. This transition occurs at around 50-70% of the VO_2 max which validates previous clinical and coaching recommendations for training levels. With knowledge of the anaerobic threshold, we can individualize exercise prescriptions metabolically. It appears at the present that accurate and reliable determination of this important physiological variable can only be obtained with moderately advanced analytical methods.

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BRIEF SUMMARY
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INDICATIONS AND USAGE: I. Vasospastic Angina: PROCARDIA (nifedipine) is indicated for the management of vasospastic angina confirmed by any of the following criteria: 1) classical pattern ot angina at rest accompanied by ST segment elevation, 2) angina or coronary artery spasm provoked by ergonovine, or 3) angiographically demonstrated coronary artery spasm. In those patients who have had angiography, the presence of significant fixed obstructive disease is not incompatible with the diagnosis of vasospastic angina, provided that the above criteria are satisfied. PRDCARDIA may also be used where the clinical presentation suggests a possible vasospastic component but where vasospasm has not been confirmed, e.g., where pain has a variable threshold on exertion or in unstable angina where electrocardiographic findings are compatible with intermittent vasospasm, or when angina is retractory to nitrates and/or adequate doses ot beta blockers.

II. Chronic Stable Angina (Classical Effort-Associated Angina): PRDCARDIA is indicated for the management ot chronic stable angina (effort-associated angina) without evidence of vasospasm in patients who remain symptomatic despite adequate doses of beta blockers and/or organic nitrates or who cannot tolerate those agents.

In chronic stable angina (effort-associated angina) PRDCARDIA has been effective in controlled trials of up to eight weeks duration in reducing angina frequency and increasing exercise tolerance, but confirmation of sustained effectiveness and evaluation of long-term safety in those patients are incomplete.

Controlled studies in small numbers ot patients suggest concomitant use of PROCARDIA and beta blocking agents may be beneficial in patients with chronic stable angina, but available information is not sufficient to predict with confidence the effects of concurrent treatment, especially in patients with compromised left ventricular function or cardiac conduction abnormalities. When introducing such concomitant therapy, care must be taken to monitor blood pressure closely since severe hypotension can occur from the combined effects of the drugs. (See Warnings.)

CONTRAINDICATIONS: Known hypersensitivity reaction to PRDCARDIA.

WARNINGS: Excessive Hypotension: Although in most patients, the hypotensive effect of PROCARDIA is modest and well tolerated, occasional patients have had excessive and poorly tolerated hypotension. These responses have usually occurred during initial titration or at the time of subsequent upward dosage adjustment, and may be more likely in patients on concomitant beta blockers.

Severe hypotension and/or increased fluid volume requirements have been reported in patients receiving PROCAROIA together with a beta blocking agent who underwent coronary artery bypass surgery using high dose fentanyl anesthesia. The interaction with high dose fentanyl appears to be due to the combination of PRDCARDIA and a beta blocker, but the possibility that it may occur with PRDCARDfA alone, with low doses of fentanyl, in other surgical procedures, or with other narcotic analgesics cannot be ruled out.

Increased Angina: Occasional patients have developed well documented increased frequency, duration or severity of angina on starting PRDCARDIA or at the time of dosage increases. The mechanism ot this response is not established but could result from decreased coronary perfusion associated with decreased diastolic pressure with increased heart rate, or from increased demand resulting trom increased heart rate alone.

Beta Blocker Withdrawal: Patients recently withdrawn from beta blockers may develop a withdrawal syndrome with increased angina, probably related to increased sensitivity to catecholamines. Initiation of PRDCARDIA treatment will not prevent this occurrence and might be expected to exacerbate it by provoking reflex catecholamine release. There have been occasional reports of increased angina in a setting of beta blocker withdrawal and PRDCARDIA initiation. It is important to taper beta blockers if possible, rather than stopping them abruptly before beginning PROCARDIA.

Congestive Heart Failure: Rarely, patients, usually receiving a beta blocker, have developed heart failure after beginning PROCARDIA. Patients with tight aortic stenosis may be at greater risk for such an event.

PRECAUTIONS: General: Hypotension: Because PRDCARDIA decreases peripheral vascular resistance, careful monitoring of blood pressure during the initial administration and titration ot PRDCARDIA is suggested. Close observation is especially recommended for patients already taking medications that are known to lower blood pressure. (See Warnings.)

Peripheral edema: Mild to moderate peripheral edema, typically associated with arterial vasodilation and not due to left ventricular dysfunction, occurs in about one in ten patients treated with PRDCARDIA. This edema occurs primarily in the lower extremities and usually responds to diuretic therapy. With patients whose angina is complicated by congestive heart failure, care should be taken to differentiate this peripheral edema from the effects of increasing left ventricular dysfunction.

Drug interactions: Beta-adrenergic blocking agents: (See Indications and Warnings.) Experience in over 1400 patients in a non-comparative clinical trial has shown that concomitant administration of PRDCARDIA and beta-blocking agents is usually well tolerated, but there have been occasional literature reports suggesting that the combination may increase the likelihood of congestive heart failure, severe hypotension or exacerbation ot angina.

Long-acting nitrates: PRDCARDfA may be safely co-administered with nitrates, but there have been no controlled studies to evaluate the antianginal effectiveness of this combination.

Digitalis: Administration of PRDCARDIA with digoxin increased digoxin levels in nine of twelve normal volunteers. The average increase was 45%. Another investigator found no increase in digoxin levels in thirteen patients with coronary artery disease. In an uncontrolled study of over two hundred patients with congestive heart failure during which digoxin blood levels were not measured, digitalis toxicity was not observed. Since there have been isolated reports of patients with elevated digoxin levels, it is recommended that digoxin levels be monitored when initiating, adjusting, and discontinuing PRDCARDIA to avoid possible over- or under-digitalization.

Carcinogenesis, mutagenesis, impairment of fertility: When given to rats prior to mating, nifedipine caused reduced fertility at a dose approximately 30 times the maximum recommended human dose.

Pregnancy: Category C. Please see full prescribing information with reference to teratogenicity in rats, embryotoxicity in rats, mice and rabbits, and abnormalities in monkeys.

ADVERSE REACTIONS: The most common adverse events include dizziness or light-headedness, peripheral edema, nausea, weakness, headache and flushing each occurring in about 10% of patients, transient hypotension in about 5%, palpitation in about 2% and syncope in about 0.5%. Syncopal episodes did not recur with reduction in the dose ot PROCARDfA or concomitant antianginal medication. Additionally, the following have been reported: muscle cramps, nervousness, dyspnea, nasal and chest congestion, diarrhea, constipation, inflammation, joint stiffness, shakiness, sleep disturbances, blurred vision, difficulties in balance, dermatitis, pruritus, urticaria, fever, sweating, chills, and sexual difficulties. Very rarely, introduction of PROCARDIA therapy was associated with an increase in anginal pain, possibly due to associated hypotension.

In addition, more serious adverse events were observed, not readily distinguishable from the natural history ot the disease in these patients. It remains possible, however, that some or many of these events were drug related. Myocardial infarction occurred in about 4% of patients and congestive heart failure or pulmonary edema in about 2%. Ventricular arrhythmias or conduction disturbances each occurred in fewer than 0.5% of patients.

Laboratory Tests: Rare, mild to moderate, transient elevations of enzymes such as alkaline phosphatase, CPK, LDH, SGDT, and SGPT have been noted, and a single incident of significantly elevated transaminases and alkaline phosphatase was seen in a patient with a history of gall bladder disease after about eleven months of nifedipine therapy. The relationship to PRDCARDfA therapy is uncertain. These laboratory abnormalities have rarely been associated with clinical symptoms. Cholestasis, possibly due to PRDCARDIA therapy, has been reported twice in the extensive world literature.

HOW SUPPLIED: Each orange, soft gelatin PRDCARDIA CAPSULE contains 10 mg of nifedipine. PROCARDfA CAPSULES are supplied in bottles of 100 (NDC 0069-2600-66), 300 (NDC 0069-2600-72), and unit dose (10x10) (NDC 0069-2600-41). The capsules should be protected from light and moisture and stored at controlled room temperature 59° to 77°F (15° to 25°C) in the manufacturer's original container.

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CHILD AUTO RESTRAINTS

Karen Schaaf, M.D.

Abstract

Reported child auto restraint use has been unacceptably low. Passive restraint systems and/or redesigning car interiors for better crash protection would be better than nothing, but still less than satisfactory solutions to the problem. Efforts to get active voluntary parent participation have met with mixed success. Legislating mandatory use of child auto restraints is a third approach which is being tried in 20 states at present and which has brought about increased restraint use in at least one state. Child auto restraint legislation has been introduced in the Alaska legislature. A child passenger protection workshop held on March 12, 1983 emphasized the need for legislative action, supplemented by community participation. Community involvement will be a major factor in increasing child auto restraint use.

Each year nearly 1,000 children under age 5 are killed in auto accidents in the U.S.: more than 50,000 are injured (1). According to a 10 - year Washington State study, 93% of these child passenger fatalities could have been prevented and 78% of the injuries could have been less disabling by proper use of child auto restraints (2, 3). The rate of fatalities is inversely related to the age of the child, the rate for infants less than six months of age being twice that of children age one year (4).

Reported figures for the percentage of children who are transported in auto restraints range from 7% to 35% in populations in which no laws requiring use of organized effort at parent education where in effect (1,2, 5 - 9). The figures have been obtained by one of two basic methods - - parents' reported use of auto restraints for their children and observations of use at parking lots and shopping centers. Not all reports have differentiated proper from improper (and thus ineffective) restraint use. Most observational studies have obtained figures of **proper** child auto restraint use in the range of 7% to 16% (2, 5, 6, 8, 9,). There is a trend toward more frequent use for infants than for toddlers and older children (5, 9). Surprisingly, in one study 85% of children riding in autos in which adults were restrained were not themselves restrained (8). If 93% of child auto accident fatalities can be prevented by proper restraint use, how can these reported low rates of use be improved?

There are three basic approaches by which children might be better protected against car crash injury and death: 1) installation of passive restraint devices (air bags) and redesign auto interiors for better crash protection; 2) increase use of child auto restraints by increasing the active, voluntary participation of parents; and 3) increase use of child auto restraints by passage of legislation requiring such use. The first approach is more or less in the hands of auto manufacturers. At present none of the cars on U.S. highways are equipped with air bags and none are likely to be in the near future. It is generally felt that air bags would not provide adequate protection for young children against injury or death, but "anything is better than nothing." Redesigning car interiors is likewise a less than adequate solution to the problem of child auto safety and so far car manufacturers have taken no steps in that direction.

The second approach involves bringing about voluntary behavior and/or attitude changes in the parents. Attempts to bring about the desired behavior change by simply providing parents with information have had mixed results. The first attempt at increasing child restraint use by physician counselling was reported in 1964 by Bass and Wilson (10). These investigators found a 43% increase in the **reported** use of child auto restraints after a discussion between physicians and parents regarding their use. Simons in 1976 claimed that counselling by "medical personnel" at each office visit for six months increased **reported**

Seattle, Washington, University of Washington School of Medicine, Family Medicine WAMI site in Ketchikan, Alaska. Reprint requests: Karen Schaaf, M.D., 5005 Phinney Ave. N., #300, Seattle, WA 98103

use by 93% (11). However, more recent studies are less encouraging. In one study by Miller and Pless in 1977 (12) three groups of parents received three different treatments. One group was given a pamphlet; the second group was given a pamphlet and verbal instructions by a pediatrician; a third group was given pamphlet, verbal instruction and a slide-tape show. The control group received no instruction of any kind. All four groups were contacted two weeks later and asked whether their child was using a restraint on his last car trip. There was no significant increase in child restraint use in any of the four groups. The control group showed the largest absolute change toward increased use.

Another study (6) reported the results of three different educational programs for postpartum women aimed at increasing proper use of infant carriers. One group was given literature on proper use of infant carriers and several models were displayed in the patient lounge. A second group received literature, the infant carrier display, and a personal discussion with a trained (non-medical) health educator. A third group was given the literature and was offered a free infant carrier. The control group received no information on infant carriers. Observations of two-thirds of these new mothers two to four months later showed there was a "moderate increase" in the proper use of the infant carrier in the group that was given literature and a free carrier. There was no significant increase in use for the other groups. Overall proper use was 20-30% in all four groups. The most frequent means of infant travel was in someone's arms, an unsafe practice which was warned against in the educational programs.

Others have suggested employing two key social learning principles to increase the frequency of child restraint use: modelling and offering a reward for the performance of the desired behavior. For example, a study done by Chritophersen in 1977 (13) on a small number of subjects (5 in control, 6 in experimental group) showed a "dramatic decrease in inappropriate and unsafe behavior" when children who did not usually ride in a car seat were placed in one and properly restrained. The author suggests that this reduction in inappropriate, disruptive behavior can be used by pediatricians as a "selling point," i.e., a reward for parents to use car seats for their children.

A third approach to increasing use of auto restraints is by legislating mandatory use. The State of Tennessee in 1978 became the first state to pass such legislation. Observational studies in two Tennessee cities showed restraint use of 8% prior to the law, increasing to 16% for months after the law went into effect (9). As initial post-law use was unacceptably low, efforts were made to increase use through education, public information and greater enforcement of the law. Eighteen months later restraint use was up to 29% (14). Child auto accident deaths in 1980 in Tennessee were 50% fewer than in 1977, before the law was passed (15). As of July 1982, 20 states had passed child restraint laws and such laws were pending in six other states (1(1982)).

In Alaska, the rate of accidental death for children 1 to 4 years of age is 56.5/100,000, 40% of which are motor vehicle deaths (16). I attended a child auto safety workshop on March 12, 1983, which was attended by interested persons from around the state via the teleconference network. The purpose of this workshop was to generate ideas and discussion concerning child auto safety, with emphasis on present and future community and legislative action. The topic was viewed from a public health perspective. The importance of community action was stressed and representatives of child passenger protection programs organizations' activities. In summary, speakers made the following points:

** Child auto accident deaths are the Number One killer of children age 1 to 15.
** These deaths are preventable by proper use of auto restraints.
** Efforts to get voluntary use to acceptable levels have met with mixed success.
** Therefore, legislation making it a violation of the law **not** to use auto restraints for young children seems to be in order.

A bill has been introduced in the Alaska House which, if passed, would make it a violation of the law punishable by up to $300 fine for transporting children up to age 6 in motor vehicles without properly sercuring them in restraint devices. Evidence of conviction for violation of this law may be used as evidence of negligence in a civil action. This bill also establishes a child safety device loan program administered by the Department of Public Safety, Highway Safety Planning Agency. This program would be responsible for 1) providing child safety devices to hospitals and birthing centers for rental to the public at a small cost and 2) educating the public about the risks of injury and death to unrestrained children. Finally, this legislation forbids the sale or installation of any child safety device not conforming to federal safety standards. The law would go into effect one year after passage, to allow time for public education and practical preparation.

** In order to attain good compliance with the law and in the interest of improving child auto safety practices in the state, community action is necessary in the form of: 1) multi-media education to increase community awareness of the problem and inform parents of the availability of and proper us of child auto restraints; 2) car seat loan programs in which infant car seats are made available in hospitals and birthing centers or new mothers to borrow at a nominal fee. There are presently four car seat loan programs operating in Alaska.

Transporting an unrestrained child is a preventable cause of childhood death and injury. I don't believe that legislation by itself is the answer. I think community awareness and involvement will be a major factor. Pediatricians, family physicians, nurses and other medical persons who have contact with parents of young

children should take a part in teaching the importance of child auto safety.

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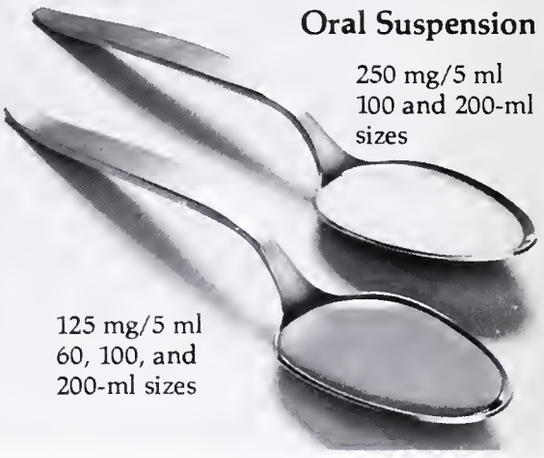

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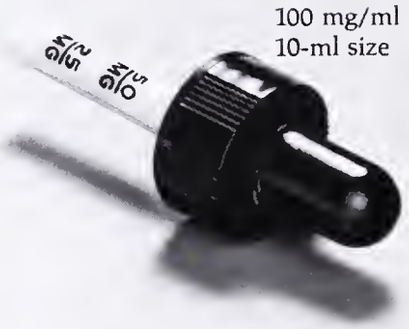

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ANCHORAGE, ALASKA AND HONOLULU, HAWAII: SEASONAL DIFFERENCES IN DEMAND FOR COUNSELING SERVICES

Russ Christensen, M.S.

Researchers have for some time been attempting to determine if seasonal variations in weather or climate influence mental health. A considerable body of work on seasonal trends in suicide exists (1). However, the less dramatic indicators of mental health, but which involve many more people, such as the demand for counseling services, have received little attention.

In an attempt to go beyond the limitations of most previous studies on winter and climate and mental health which examined data from single mid-latitude and often mid-continent locations this study compared two cities with very different climates and locations: Anchorage, Alaska and Honolulu, Hawaii.

Anchorage, located at 61 degrees north latitude -slightly farther north than Oslo, Stockholm, Helsinki or Leningrad - with approximately 200,000 residents contains nearly half the population of Alaska. The dominant climatic characteristic is winter, lasting from October to April. Summer tends to be brief, overcast and rainy (2).

Honolulu, located at 21 degrees north latitude - two degrees north of Mexico City - is the largest city in Hawaii with a population twice that of Anchorage. The climate of Honolulu, because of its mid-Pacific location, is warm and pleasant year-round. There are only small seasonal variations in temperature and amount of daylight (3).

If one believes that weather or climate does effect mood, if not mental health - a new field of research, psychological biometeorology, has recently come into being just to study that relationship - then one could logically expect that two cities with very different climates would have two different mental health patterns.

Using the chi square test of significance data from community mental health centers in Anchorage and Honolulu for the last three years (1979 - 1981) was analyzed.

Anchorage Community Mental Health Center admissions (Family, Adult and Geriatric units) for the three-year period (N = 3,517) experienced statistically significant seasonal differences ($P = < .001$). Summer (June, July and August) was the season with the greatest number of admissions with 1013, while winter (December, January and February) was the season with the fewest having only 702. Spring and autumn had 856 and 946 respectively. The three-year peak is somewhat misleading as there was considerable variation in peak season from year to year - summer in 1979, spring in 1980 and autumn in 1981. However, winter was the season with either the lowest - 1980 and 1981 - or next to the lowest number of admissions -1979 - for the three-year period.

In contrast, Honolulu did not experience statistically significant seasonal differences in admissions to its two community mental health centers - Diamond Head and Kalihi Palama - ($N = 3,167$) ($P = > .10$): spring 818; summer 828; autumn 776; and winter 745.

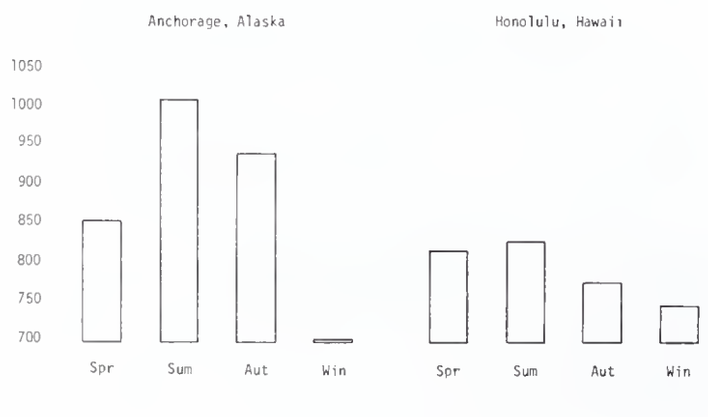
The results of the above analysis could lead one to suggest that Anchorage's winter low is the result of expectations about climate. In Anchorage, the long, cold winter is expected by new arrivals and accepted by long time residents and for some (many?) it is seen as a challenge or at least an interesting phenomenon. Spring, on the other hand, is a time of melting snow

and ice and mud; summer tends to be overcast and rainy; and autumn is merely a brief transition to winter. They, rather than winter, are the seasons during which people are most likely to seek counseling. In contrast, the rather equable year-round climate of Honolulu moderates the seasonal variations in demand for counseling services.

The above patterns may or may not support the idea that weather or climate affects mental health. Not only may there be biometeorologic, but socioeconomic factors at work. There may also be a masking effect of the true influence of weather or climate by the use of "standard" seasons for different climatic areas or for nations or regions that are climatically diverse. The use of standard seasons assumes that seasons, whatever the climate or location, are perceived physiologically and psychologically the same. This is probably a fallacious assumption. Therefore, it is rather difficult to empirically demonstrate a relationship between the weather or climate and mental health (1).

Anchorage's winter low in community mental health center admissions is to most an unexpected phenomenon. However, it merely reflects the state-wide pattern (4). A winter low is also to be found for suicides nationally as well as being far from uncommon internationally (1).

Be that as it may, there remains a widespread belief among the general public in winter depression in Alaska and among some Alaskan mental health professionals in a springtime peak in demand for counseling services (5). The unfortunate results of this popular wisdom may be the misdiagnosis of winter or spring complaints as normal. Friends may talk of winter "cabin fever". Counselors and physicians may tell the client/patient that the depression, anxiety, etc. he/she may suffer in the spring is seasonal. Or they may misinterpret complaints voiced in the summer and autumn as unusual when in fact they are not. And to add injury to insult many counselors and physicians tend not to work with or treat those people they expect to get better on their own. Therefore, it is important that those who are sought out by others for comfort be aware that the "blues" in Alaska appear to be least prevalent during the winter and do not peak during the spring but continue on through the summer and autumn.



Community Mental Health Center Admissions 1979 -1981

Acknowledgements

My thanks to Phil Huntington of the Anchorage Community Mental Health Center and Myra Oshiro of the Mental Health Division, Department of Health, State of Hawaii for the data.

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The last issue of Alaska Medicine carried an article on pages 53 and 54 entitled ***Myths of Mid-Winter Depression****. The authors were listed as Russ Christensen and Peter W. Dorick. However, the article which followed the abstract concerned community health admission patterns in Anchorage and Honolulu.*

The confusion resulted from the title page and abstract of ***Myths of Mid-Winter Depression*** *which is to appear in the fall issue of the Community Mental Health Journal being mistakenly combined with the article on mental health admissions in Anchorage and Honolulu.*

The article as it should have appeared is printed above.

Russ Christensen

AN INVENTIVE MOTHER:

CREATING A PRODUCT FOR OTHER MOTHERS

Wanda Dugan

Many mothers want to breastfeed their babies. They know it can be the healthiest, most nutritious and satisfying method of feeding an infant. Several problems can get in the way; early separation from the baby, a busy working schedule, or a painful experience with nursing.

One woman who faced all three barriers determined to nurse her children anyway. She decided only one thing could get her through the experience: an adequate, inexpensive breast pump. She could find nothing to meet her needs so she invented a pump. She then made a few more for friends. Before long she needed help in assembling the breast pumps. In a few short years the Ora'Lac Pump became part of a thriving cottage industry in her community, and the solution to may other women's nursing problems.

Jill Lunas, the inventor of the Ora'Lac Pump, first encountered frustration with breastfeeding after the birth of her first son. "Severe engorgement made the breastfeeding prospect anything but pleasant," she says, "and the hospital breast pump was messy and painful." When the problem grew worse with a second child, Jill decided to invent a pump.

Jill used her Duke University training in Medical Arts and Illustration and did a little "scrounging" at the University of Oregon Medical School where her husband was finishing a residency in internal medicine. She combined two original ideas; "I decided to use the mother's mouth as the means for controlling suction on the pump, and to collect the milk in a ready-to-use milk bottle, without an intermediate collecting depot." One step eliminated the pain, the other eliminated the mess. The ideas worked well.

With the Ora'Lac Pump Jill overcame the engorgement problem with her third child and she produced twice as much milk as the baby needed. She even supplied milk for another infant separated from his mother.

Jill made 30 pumps for friends and acquaintances using a glass breast shield with a rubber nipple, a glass centrifuge tube with tip removed, a two-hole rubber stopper, two glass pipettes and tubing for each one. By the time her fourth child was born Jill saw the need to market her product to other women. She made a few improvements: a saliva trap to protect the milk in the collecting bottle ("I got the idea from watching the fuel filter on our 22-foot boat"), a neoprene stopper to prevent deterioration, and rigid nylon tubing instead of pipettes to make most of it unbreakable.

After moving to the isolated island community of Sitka, Alaska, in 1969, Jill began to line up her unusual staff of assemblers: a fisherman's wife who assembles pumps in the off-season, an Eskimo foster son, a mother and teenage son, and several housewives, one paraplegic and another blind.

Jill's breast pump was approved by the La Leche League Medical Advisory Board in 1969. The pump has also been recommended and approved by Dr. Michael J. Miller, director of Pediatric Bacteriology Laboratory, University of Oregon Medical School.

Besides official approval for her pump, Jill receives frequent letters of applause from working mothers, mothers who have been separated from hospitalized infants, mothers whose babies must be nursed because of allergies, and from mothers with painful breast problems. Several hospitals now order Ora'Lac Pumps and one obstetrician orders the pumps wholesale to provide one for each of her nursing mothers.

The Ora'Lac Pump is relatively inexpensive, works without moving parts, and is now unbreakable, so it lasts through several children. It is light, weighs 8 ounces packaged, and can be mailed first class. Jill Lunas still oversees her enterprise from Sitka with a marketing director to handle the business end of things.

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_____	033	Levodopa/Carbidopa and Levodopa
_____	034	Ergot Derivatives
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A SURVEY OF MEDICINE IN CHINA

David E. Johnson, M.D.

Election Day, 1982, saw thirteen Alaskans departing from Anchorage International Airport for Tokyo, en route to the People's Republic of China. In response to an invitation to form a delegation from the People-to-People organization, the Alaska State Medical Association was sponsor of the trip, one of several by state medical association groups visiting China in 1982. It is of course impossible to capture all of the impressions, feelings, ideas and experiences one has following even a brief visit to such an immense, complex and varied country. What follows is a chronology interspersed with some of my thoughts regarding what we saw.

Delegation members included six physicians, a dentist, a pharmacist and a registered nurse from the health professions, as well as two elementary school teachers. The initial meeting of the whole group was at the Japan Airlines ticket counter. Delays by both weather and the power outage in Anchorage set back departure for the seven hour flight to the New Tokyo International Airport at Narita by more than two hours.

Landing in Tokyo, clearing customs and immigration, retrieving our luggage on ingenious carts with automatic braking systems, and meeting our tour manager, Richard Borges, from the Maupintour/People-to-People Organization was our introduction to a foreign country. Piling into a bus with our luggage, and pulling out of the airport on the left side of a narrow winding road en route to the hotel provided immediate evidence that things were going to be different.

The next morning we visited downtown Narita, a delightfully non-touristy Japanese city. We walked past many shops on the narrow streets en route to and from the large Buddhist temple in the center of town. This provided many of us a first opportunity for sampling local wares, though none of us ventured too far from the guide's recommendations. Working with exchange rates, new currency and communicating with very limited language were all necessary new skills for which we had considerable use as the trip continued. Handing over a bill with a face amount of 10,000 just did not feel right, even with the exchange rate of 263 yen per dollar.

After lunch at the hotel, we returned to the New Tokyo International Airport for the flight to Beijing, Beijing is the transliteration for Peking, and even in China the latter name is used at least as often as the former. Our carrier for that flight, and for the flights we took within China, was the Civil Aviation Administration (CAAC). The plane was quite modern, and our tour manager assured us we had been fortunate in not being assigned some of the less desirable planes in the CAAC fleet. We landed in Beijing and encountered the first of literally thousands of uniformed Chinese we would see on our trip. They were much more concerned with keeping us in the proper lines than in officious harrassment.

The Beijing airport is of indeterminate age in appearance. The apparent casual day-to-day cleaning and determined use of bland colors made it look quite old although it was finished in the late seventies. We were struck by the variety of baggage claimed by the other passengers, many of whom appeared to be Chinese. We saw stereos, televisions, even washers and dryers being taken off the carousel, and we learned later that almost all Chinese who go abroad are government officials with special privileges. The parade of paper boxes in checked baggage looked just like Alaska Airlines baggage claims areas after trips "outside." We picked up our luggage and struggled with it through customs, all expedited considerably by our tour manager.

Before long we met our local guide and boarded our bus for the forty minute drive into Beijing, arriving late in the evening. The entire road from the airport to Beijing is illuminated by street lights, the significance of which was lost upon us that first evening. We quickly learned that electricity is expensive and used very sparingly wherever we went in China. Hallways are commonly unlit and apartments are lit by bare single overhead flourescent tubes.

The road was occupied by trucks, buses, horse-drawn carts, bicycles, pedestrians, and a few automobiles. None of the vehicles drove with anything

except parking lights, by law. The cacaphony of horns was something to which we rapidly became accustomed on all of our bus riding in China. The skill of the bus drivers can only be described as amazing, avoiding the rivers of humanity and vehicles that flow along Chinese roads, while passing everyone possible and blowing the horn almost constantly. There is no private ownership of automobiles in China: the classless society provides automobiles only to government officials.

Everywhere we went in Beijing we saw winter cabbage. We saw it on carts, wagons and bicyles. We saw it harvested in fields, stacked on boulevards, lined up on apartment windowsills. The honor system apparently seemed to operate regarding distribution, unless people just could not eat any more. Without refrigeration common sense and perishability worked hand in hand to discourage greed.

In Beijing we stayed at the Diaoyutai State Guest House, a multi-building complex built under Russian tutelage in the fifties. Initially used only for government visitors, since that was all that there were, it has been pressed into duty as a headquarters for some tour groups in Beijing with the increased tourism to the People's Republic of China. While the accommodations were comfortable and spacious, and the service was attentive to a fault, we were very isolated from the feeling or flavor of the city. The grounds really had the aura of a summer camp rather than part of the bustling city of nine million people.

Many special favors were done for us as "foreign friends," including private dining rooms in restaurants and our own bus, driver, and guide/interpreter in each of the cities we visited. There was both geniune interest in our feeling welcome and an undercurrent of setting us apart from the Chinese people and controlling us. Reading descriptions of China just a few years ago it is apparent that segregation of Westerners has been dramatically decreased. Some members were able to visit informally in a Chinese home. To talk with Chinese people anywhere except in public was not usually possible -- they were not permitted into our hotels. Traveling from place to place with our guides provided many hours of questions and answers. As China International Travel Service (CITS) employees, the guides provided the official government line on formal subjects. They were very forthright and helpful on issues where they felt no official constraint, and their responses to numerous questions provided much of the background and information we gathered regarding medical care in China.

During our stay in Beijing we had the opportunity to see several of the local attractions. These included the Forbidden City, formerly the emperor's residence and now a huge museum; and the Summer Palace, the summer residence for the Empress Dowager in the last stages of the Ching Dynasty in the early 20th Century. While we were not able to get tickets for the Peking Opera, an enormously popular attraction for the Chinese, we were able to see another opera. It was done in traditional style but carried a government-approved message regarding a brave woman who was ultimately killed for supporting the revolution and defying her feudal husband. On another evening we ate Peking duck at **the** Peking Duck restaurant, with several members enjoying a peek at the next dining room where Prince Sihanouk of Cambodia/Kampuchea was celebrating his birthday with a large group.

The economic circumstances of the individual Chinese have always been determined in considerable measure by accident of birth. Whereas once there were emperors and subject, feudal landlords and peasant tenants, now there are Communist party elite and everyone else. Everyone else lives in poverty, securing China's claim as a Third World country. Party elite live in relative luxury, with private homes with lawns behind walls, government-paid foreign travel, chauffered limousines with curtained windows, and freedom from ration coupons for cotton and wool. George Orwell predicted very correctly: all the Chinese are equal, only some are more equal than others.

We visited the Sino-Romanian Friendship People's Commune, nicknamed the Marco Polo Bridge commune. There we had the opportunity to see the Chinese commune's answer to a Pioneer's Home, and to visit briefly with the barefoot doctor there at the clinic, and to tour the commune hospital.

The medical aspects of the trip, occupying the central purpose of the visit as they did, are the subject of a separate paper. However, to summarize the conclusions we drew after this first encounter with the health care system, the impressive things were that nothing is disposable; that everything is very basic and technology is extremely limited; and that the forbearance and spirit of the Chinese people, both health workers and patients, are the reasons that the health care system works. While we had requested to visit one of the many referral hospitals or medical schools in Beijing, we were unable to do so. CITS was solely responsible for our itinerary, and there are too many other groups from both the United States and elsewhere with higher priority for us to be permitted to see what we wanted.

On a memorably beautiful fall day we took the bus to the Ming Tombs, and then on to the Great Wall of China. Even in its current state of tourist development, the Great Wall is a vivid portrait of both the almost unbelievable physical effort and the enduring nature of those efforts that the Chinese people have made as the oldest continuing civilization on the earth. The basic structure of the wall is well over 2,000 years old, and it stretches across remarkably steep terrain just in the few miles of it that are visible from the visitor's center at Badaling Pass. Total length of the Great Wall is variously listed at 3,400 miles and up.

After three busy days in Beijing we were up at five for breakfast before a CAAC flight to Nanjing. While landing at the airport we were struck by the numbers of MIG fighters we saw. We spent the morning visiting a Chinese traditional hospital which typifies the current

Chinese approach to medical care, namely giving an important place to both traditional Chinese and contemporary Western medicine. In fact, there is considerable synthesis of the two approaches in both the Western hospitals and the traditional hospitals, but the therapeutic regimen at the traditional hospital is virtually exclusively acupuncture, massage and herbal medicines. Diagnostic modalities are more closely similar in the two types of hospitals. Patients could choose which sort of treatment they wanted.

After lunch at the hotel we visited Sun Yat-sen Memorial Park, a beautiful memorial built in the 1920's to commemorate Doctor Sun Yat-sen. A physician who became a revolutionary leader, Sun Yat-sen was elected the first president of the Republic following the overthrow of the Ching Dynasty in 1912. While the memorial would probably not have been to his liking, since he was reportedly an exceedingly non-ostentatious man, it is a beautiful tribute to a man still held in highest regard by the Chinese people. Given the enormous number of Chinese, nearly one fourth of the total world's population, one could reasonably argue that Doctor Sun Yat-sen is one of the best known physicians in the world.

The next morning we visited the Jiang Su Workers' Hospital, a Western hospital affiliated with Nanjing Medical College. We received a very warm welcome from the staff and three of our delegation members presented papers there to a group of staff members and house officers. Our local guide from CITS performed yeoman's duty in translating technical language and assisted our host and the hospital's assistant administrator, Doctor Kwan was an elderly Chinese physician who had learned his English as a house officer many years ago. He personally escorted us through the hospital where we saw several patient care areas. The hospital had a hyperbaric medicine unit that was the peer of any in the United States. Two units were large enough to perform surgery in the chamber. The surgeon rounding with us performed trauma surgery and bowel surgery there as indicated. The rest of the hospital was not as technologically advanced but had a full range of services and was the most referral-oriented hospital that we saw.

That afternoon we made a boat trip on the Yangtze River and saw the famous bridge across the Yangtze, built exclusively with Chinese effort and technology after it had been declared impossible by Russian and Western consultant engineers. The bridge is two level providing both highway and railroad access between the population centers in the northern interior, including Beijing and the Yangtze River Valley, an important agricultural area. The bridge is an accomplishment of which the Chinese people are justifiably very proud.

After dinner we had a special tourists' program of traditional Chinese singing and dancing. Some of the singing was Chinese and some catered specifically to the visitors, both Japanese and American. It was the first time that any of us had heard a concert soprano solo version of "Jingle Bells," sung first in Chinese and then in English accompanied by a traditional Chinese orchestra. It was a delightful experience and even the memory provokes a grin. Another evening we ate in a Szechwan restaurant, our only experience with that eye-wateringly hot cuisine.

We departed by train in the morning for the trip from Nanjing to Shanghai. We spent the day traveling south and east past countless meticulously manicured fields with almost exclusively hand labor harvesting rice and using water buffalo powered plows for turning the soil in preparation for the next crop. Entering Shanghai we saw yet another aspect of China. Beijing was cool, dusty and austere, with wide gray streets and dozens of Russian-inspired official buildings; the pace was matter-of-fact, fast and serious. Nanjing, by contrast, was a city of meticulously manicured trees lining the streets and the atmosphere seemed slower and friendlier. Shanghai was a bustling, teeming metropolis: more western in appearance, yet crisscrossed with narrow streets; surrounded by factories and railyards full of train cars loaded with tractors and trucks; jammed with 13 million people, the third largest city in the world.

One morning we visited carpet, jade, and ivory carving factories and saw remarkable artisans at work. More than a few of us succumbed to the temptation to purchase a silk rug. As you might expect our baggage was becoming progressively heavier. That afternoon we took a cruise on the Huang Pu River, the enormous seaport for Shanghai which is the industrial center for all of China. The air held ample evidence of the effect of concentrated industrialization.

In the evening we attended an acrobatics and trained animal show and were struck by the lack of response from the Chinese people. We were told afterward that the Shanghai audiences are extraordinarily "tough" and the acrobatics, juggling and trained animals' antics were simple not up to the standards the patrons expected. Even the most hardened Chinese spectator joined the considerable number of Americans and other tourists in expressing delight at the trained panda who did his best with government propaganda by turning down the fiery Chinese liquor Mao-Tai, and instead, selecting a bottle of milk before riding around the ring blowing his trumpet at the spectators. You probably had to be there to really get the entire picture.

Upon arriving back at our hotel that evening we were informed by our local guide that it had just been announced that Leonid Breshnev had died some days earlier in Moscow. It was a thought-provoking time to be in a foreign country not very long ago portrayed as our adversary, and to experience at first hand the current political stability that permitted us our visit while changes of that magnitude were taking place at the very pinnacle of international super power.

The next day we again visited a commune, where we had opportunity to talk at some length with two barefoot doctors in their small clinic. Communes are organized into production teams comprised of a number of families. These are in turn grouped into

production brigades, each of which has its own barefoot doctor clinic. Barefoot doctors have a year or so of training in practical medical care and public health. Only if the problem were more difficult than could be solved by the barefoot doctor would the brigade member be sent to the commune hospital. They would be referred beyond that to a municipal hospital only if it was considered necessary by the commune hospital physicians. We enjoyed visiting the local pharmacy and sampling some of the herbal medicines. Several members of the group strayed off and found an elementary class in session, with the rows straight, the children quiet and attentive, and the teacher the absolute autocrat in charge.

We visited the commune hospital, a two-story building with outpatient services on the first floor. The delivery room, a sparsely furnished area by contemporary American standards, was located on the second floor at the top of a flight of stairs. There was no elevator. Again, nothing was disposable and everything was used and reused.

The following day we went to Shanghai Children's Hospital, associated with Shanghai Medical College Number One. We were welcomed by a large sign that welcomed our delegation by name, the only place we had such a formal welcome in China although we were always greeted warmly and given a briefing and tea before each tour of a commune or hospital. A referral resource for a substantial part of Shanghai, the hospital provides a wide range of services for children. The length of stay seems much longer than in American hospitals; the level of concern and caring by the physicians and staff seemed very high.

As you might expect in a country where there is a strong campaign to limit families to one child, the newborn intensive care unit was particularly poignant. Technology available is virtually nil and several tiny babies were being bagged by hand with very simple anesthesia apparatus. One could not help but sense the palpable quiet desperation of physicians and nurses trying to do something for these sick tiny babies with hardly any of the equipment we take for granted.

The outpatient department in the hospital handles approximately 1,500 visits per day, split among a staff of twenty physicians, resulting in approximately seventy-five patients per eight hour shift per physician. Doctor Ling, a cardiologist, and Doctor Chen, a neonatologist, were the primary ones who conducted us through the hospital. Their simple statement of purpose was that "we serve the people all through the day." That would be a bit of propaganda in some contexts, to be sure, but it seemingly captured the spirit of the hospital very clearly.

That afternoon we flew from Shanghai to Canton, in order that we be in position for our train trip to Hong Kong the next day. We ate dinner in a restaurant, went to the hotel, and then on to the train station in the morning. Many of us noticed that the cockroaches were progressively larger as we traveled south in China.

The train ride to Hong Kong was fascinating in any number of respects. The climate was now frankly tropical with literal jungle being chopped away for the every present rice fields. Passing across the border one could not help but notice the barbed wire fences keeping people in the People's Republic of China. Nor could one ignore the large pipeline carrying water from the People's Republic of China to Hong Kong. Surely the Chinese could take over Hong Kong whenever they wished simply by turning off the tap, British thoughts or efforts regarding the matter notwithstanding. Soon after crossing the border, highrises appeared and grew progressively higher, built everywhere because of the enormous pressure of population of five million people on less than five hundred square miles of land.

Hong Kong is a capitalist's dream, imposing genuine culture shock after the austerity and poverty everywhere evident in China. We stayed at an extremely plush hotel. Even with the knowledge that it took seven Hong Kong dollars to equal one American dollar, paying $28 for a cocktail was a startling experience. We had a lovely banquet in a private dining room at Hugo's at the Hong Kong Hyatt Hotel our last night in China. It was a very nice but not altogether welcome return to the lavish and luxurious.

The next morning we departed for the airport, negotiating customs before flying on Cathay Pacific Airways back to the airport at Narita. En route we landed in Taiwan and were able to get off the plane but had to stay in the terminal building. The stop, however brief, provided at least an out-the-window glance at that part of China still held by the Koumindang Party of Chiang Kai-shek, the man who is thought of so ill in the People's Republic of China and who has been so venerated in the cold war American press. The airport is a beautiful spotlessly clean structure built entirely with U.S. dollars.

It was something of a strange experience to have the New Tokyo International Airport appear almost a familiar and friendly place; our overnight in Narita was altogether too short. The next morning we returned to the airport, passing through its amazingly complex security system for the last time before taking off for Anchorage. We arrived in Anchorage the evening before we left Tokyo, thanks to the International Date Line.

The thirteen of us who made the trip had a genuine lifelong unforgettable experience. The Chinese people are remarkable. Their friendliness and courtesies to us could not begin to be counted. Their forbearance in the face of a stifling and intruding totalitarian government is remarkable. The genuine warmth and friendship they exhibit towards Americans is impossible not to reciprocate. The 1982 census places their number at 1,008,175,288 not counting Hong Kong, Taiwan or Macao. China has more than four times the population of the United States in about the same total land area, but with significantly less usable land. Nearly 85 percent of the population of China is rural, almost exactly the reverse of the distribution in the United States.

English is being taught everywhere in China. State television, the only television in China, is on from early through late evening. A regular fixture is an English lesson with very formal stilted sentence structure and speech. Many people listen to Voice of America on shortwave radios specifically to learn English. Many others are taught English in middle school, the university, or in special adult education classes. It was a common occurrence to have a Chinese walk up and say "good morning!" and then, once they learned that you were an American, ask for assistance in pronouncing words or explaining the meaning of words. An American accent is a very stylish way to speak the English language in China, at least among the young people.

I believe our visit accomplished the purposes we set, namely to view Western and Chinese medicine firsthand and to provide some insight into how the medical care system in China is working. While our visit would have profitted significantly from more opportunity for direct contact with fellow health professionals, it was nonetheless immensely valuable as a People-to-People contact between Americans and Chinese.

The Maupintour arrangements for the trip were meticulously thorough, the hotels and restaurants the best available, and the entire itinerary smoothly operated within the contraints placed by the China International Travel Service. The People-to-People organization seemed to rely a bit too much on how things were before travel to China became so popular and the press of tourists became almost more than the Chinese could cope with. More pre-planning of professional activities and earlier contact with the tour manager would have been helpful.

The current advertising campaign for tourism in Alaska says that once you have been in Alaska, you can never go all the way home. The same is certainly true of China.

Doctrine of Informed Consent

As doctors, most of us can accept the notion that if our negligence causes harm to a patient, we may ultimately be required to pay damages to that patient. Similarly, most of us would expect to be held liable in some way if we breach a contract with one of our patients. What is more difficult for some of us to understand is that even if we fulfill our contractual obligations to our patient, and even if we do so by delivering medical care of impeccable quality, we may still be required to pay enormous sums to the patient if we have not first obtained our patient's informed consent.

The doctrine of "informed consent" is a pitfall for the unwary physician. To the doctor attempting to follow a winding path through the legal quagmire of medical malpractice law, the doctrine of informed consent can be quicksand beneath the physician's feet.

One physician's misstep is poignantly illustrated by the following case: A nine year old boy was brought by his mother to a pediatrician. The mother stated that when the child was two years of age, he had been physically abused and had suffered a basalar skull fracture. Convulsions which developed shortly thereafter were controlled with Dilantin. The child was maintained on Dilantin for a two year period, after which that drug was discontinued; no further anti-convulsant therapy was required.

Two days prior to her visit with the pediatrician, the mother noticed behavior which that physician diagnosed as a probable convulsion. He felt that anticonvulsant therapy should be re-initiated, and gave the mother a prescription for Dilantin. Two days after the first dose of Dilantin, a macular rash developed. The pediatrician immediately discontinued the Dilantin. The following day, Stevens-Johnson syndrome was diagnosed. The child exfoliated 93% of his epidermis, and despite extensive xenografting and burn-unit treatment, the child became secondarily infected, developed DIC, and died.

The pediatrician was trapped by the web of informed consent. He was not negligent: he took a good history, performed an extensive physical examination, reasoned his way to what was undoubtedly a correct diagnosis, and chose a commonly prescribed and effective medication. His error was that he did not obtain the mother's informed consent to his proposed treatment regimen. That mistake may now cost him dearly.

"Informed consent" is a legal doctrine which arose from a solid principal of British and American common law: adults have almost an absolute right to control what is done to their bodies and to the bodies of their minor children. Medical care, in most instances, can be delivered only after the consent of the adult is obtained. That consent must be "informed": consent based upon incomplete or incorrect information is the same as no consent at all. Thus, in every case, the physician must be careful to provide the patient with all of the information the patient needs to properly consent; failure to do so will expose the physician to perilous consequences.

There are five elements which a physician must explain in order to obtain the patient's informed consent. The first of those elements is the physician's diagnosis. The remaining four elements may be easily remembered by the mnemonic "TRAP" (because a "trap" is what the physician will be in if he neglects to obtain informed consent!) The mnemonic stands for: Treatment, Risks, Alternatives and Probable success or failure.

The diagnosis should be given in both its correct medical terminology, and, if necessary, in simpler terms which the patient can understand. Many times it will be helpful to draw a picture for the patient. If a picture is drawn, it should be dated, initialed, and put in the patient's chart.

Every proposed treatment carries a certain degree of risk. All significant risks should be discussed in detail. This is true even if the occurrence of such a serious risk is rare. The case outlined above is a good example of this principal: Stevens-Johnson syndrome is a rare occurrence with Dilantin therapy, but the risk of death or serious harm is quite high in patients with that syndrome. Therefore, the risk should be discussed. The syndrome itself probably need not be named or even described, but the types of harm to which the Stevens-Johnson patient is exposed should be mentioned so that the patient (or, in this case, the patient's parent), will understand the magnitude of the possible danger.

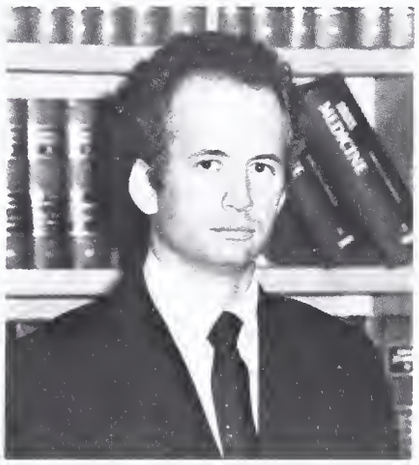
Alternatives should be thoroughly explained to the patient. In any case in which treatment is recommended, there are always at least two alternatives: no treatment, or some treatment. The "no treatment" option should usually be the first option presented to the patient. Patients will often reject this option, either immediately or after hearing the other options presented, but it should always be shown to the patient to be one possible choice. (If that option carries its own risks, those risks should be presented to the patient at that time. In one California case, a gynecologist did not inform his patient that failure to obtain a regular Pap smear could result in undetected cervical cancer. He was found liable for damages after his patient died of that malignancy.) As each alternative is presented to the patient, its risks and benefits should be described with whatever detail is necessary to allow the patient to understand each

Management

of the options available.

The probable success or failure of a proposed course of treatment is the final element a patient needs in order to be able to independently evaluate the proposed course of treatment. This can often be a very important consideration for the patient. As doctors, we often think of pathology and remedies, without sufficient attention to the expense, discomfort and disruption of life which a treatment regimen might entail. If the patient goes through multiple hardships only to find no change or a worsening in his or her condition and then discovers that the probable success of the treatment regimen was only, say, 30%, the patient is likely to become quite angry. The anger may lead to a visit to an attorney, and ultimately to a judgment against the physician.

With these principals in mind, a review of the case example will illustrate how a physician may quickly and efficiently obtain the informed consent of his patient. The physician would begin by explaining, in lay terms, his diagnosis of "probable seizure disorder." He would briefly discuss the nature and severity of the problem, and would mention any risk of harm to the child which he believed was posed by the disorder. He would present his suggestion that the child be treated with Dilantin. He would explain that Dilantin is an anticonvulsant drug, commonly prescribed, but that — like all other medications — it may produce adverse side effects. Some of its side effects are unpleasant, but could reasonably be expected to resolve after discontinuation of the drug. He would go on to relate that some people have allergic reactions to medications, and that it is often impossible to predict in advance who those people will be, or how severe the reaction will be. An allergic reaction to a medication, the doctor would continue, can cause problems ranging from a rash to — in very rare cases — death. The doctor would next list the available treatment alternatives. The first alternative would be to do nothing. He might discuss a delay in the institution of treatment, giving any risks attendant to such a delay. Another alternative offered might be to treat the disorder with phenobarbitol, followed at that point by an explanation of the risks associated with phenobarbitol therapy. Finally, the doctor would give his assessment of the probable success of the therapeutic regimen, which, presumably, would be quite high in this case. Most courts would consider consent to the treatment regimen given by the parent at that point to be "informed."

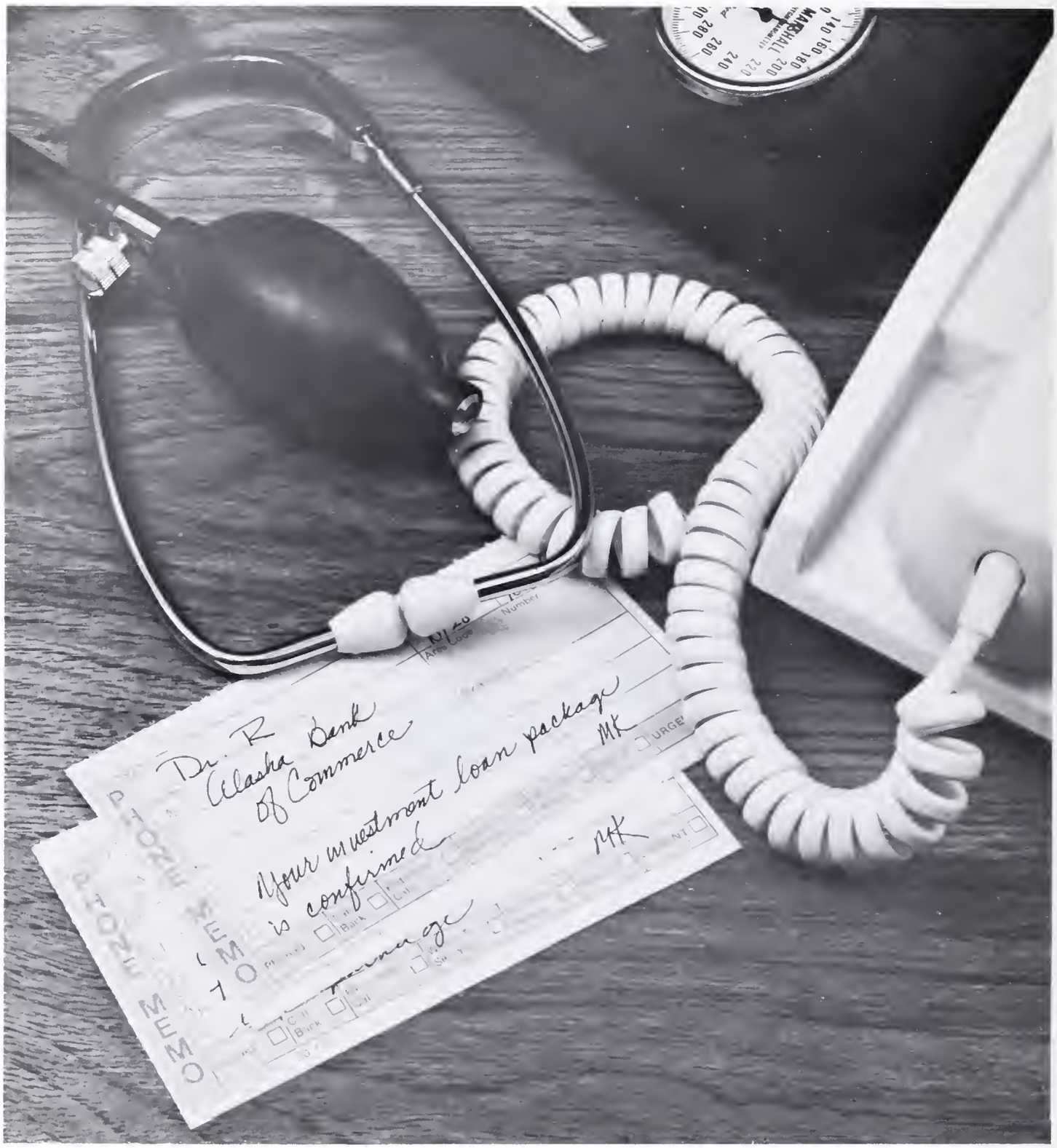


In many cases it will be advisable to memorialize the informed consent by a written document. The written document by itself has only a limited value to the physician. If a patient testifies, "I really didn't understand," the question of informed consent will be presented to a jury. The jury may ultimately decide against the patient, but no physician wants a case to proceed that far.

Perhaps the greatest value of "informed consent" is the time that the physician spends with the patient in obtaining that consent. That time, and the manner in which the informed consent is obtained, may be sufficient to convince the patient that he or she is being treated by a physician who truly cares about the patient's welfare. In that way, obtaining informed consent can add considerably to the developing bond between doctor and patient. It is that bond, not a piece of paper, which will provide the ultimate protection to the physician.

Judges and juries will, in informed consent cases, ask one ultimate question: "Did the physician provide the patient with all the information which a reasonable person in the patient's position would need in order to effectively participate in an important decision concerning a patient's life?" We should ponder that same question whenever we propose a treatment regimen to a patient.

Lee S. Glass, M.D., J.D. — has addressed numerous groups on risk management. Most recently, he addressed the International College of Surgeons and the Department of Orthopedics, University of Washington School of Medicine. Glass practices law with Faulkner, Banfield, Doogan & Holmes in Anchorage and Seattle. He is also a Resident in Anesthesiology at the University of Washington.



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LABOUR HYGIENE AND THE PREVENTION OF OCCUPATIONAL DISEASES IN THE USSR

Nikolai F. Izmerov, M.D.*

Kent R. Autor, MPH**

Introduction

The responsibility of the national government to protect and improve the health and well-being of workers on the basis of applied scientific principles is firmly established by Article 21 of the USSR Constitution. It aims specifically, not only to improve and protect working conditions, but also to reduce -- and ultimately eliminate -- manual labor through the mechanization and industrial processes in all branches of the national economy. It further requires the scientific organization of labor, and consequently, trade unions occupy a major position in the system and play a major role in formulating, implementing and supervising these constitutionally mandated governmental responsibilities. Trade unions in the USSR have a collaborative rather than an adversarial role **vis a vis** governmental management in this system, which does not inhibit their assertive advocacy to protect the workers they represent.

Soviet legislation provides many statutory requirements to ensure safe and healthy work conditions for the labor force, embracing such items as: the regulation of time for work and rest; standardization of hygienic control over hazards in the workplace; worker benefits and compensations aimed at overcoming the harmful effects of these hazards, as, for example, in defining shorter working days, additional leaves, provision of protective clothing, special diets, etc. Such legisliation also acts to protect women and youth, and to provide worker pensions. The trade unions have had, and continue to have, a most significant role in the formulation of such legislation, as well as monitoring conformities to these laws at all levels on behalf of the workers they represent.

Of course, the responsibility for providing safe and healthy work conditions specified in law, adheres to those who are responsible for the administration of any given work enterprise. Violations of the law result in administrative, disiplinary or penal sanctions.

Supervision and control over the observance of labor protection laws are specifically assigned to various governmental entities and trade union inspectorates, and are carried out by their various juridical and technical subordinates.

In the Soviet Union, the various laws, decrees, orders, rules and instructions governing labour hygiene, derive from several key pieces of legislation which provide the "orienting principles". The most important of these are: the USSR Constitution itself; the "Fundamentals on Health Care Legislation of the USSR and Union Republics"; and the "Regulations on State Health Supervision in the USSR".

Labour hygiene services for workers at industrial enterprises involve two approaches: (1) the protection and improvement of working conditions; and (2) the provision of medical treatment and preventive services to workers.

The Sanitary-Epidemiolgical Service

In the USSR, the conception of a "Sanitary-Epidemiological Service" embraces several things:

— legislation

— sanitary and health promotion measures

Paper presented at the 8th. Health Congress of the Alaska Public Health Association, Anchorage Alaska, 29 April 1983.

*Director and Professor of the Research Institute of Labour Hygiene & Occupational Diseases of the USSR Academy of Medical Sciences, Moscow.

**Public Health Sociologist, Alaska Health & Social Service Consultants, and Past President of the Alaska Public Health Association.

— scientific research
— manpower training
— public health education
— practical measures to improve the service

The main thrust of this service is to eliminate the causes which affect, or might affect, the health of the population as a whole and the creation of both living and working conditions which promote peoples' health and their full capacity for work.

The Sanitary Service in the USSR is stratified and spreads at its different levels throught the country. There is, first of all, the superordinate Sanitary-Epidemiological Board of the USSR Ministry of Health. Below this, there are equivalent Boards of the Ministries of Health of the sixteen Union Republics, which are further linked to their satellite Sanitary-Epidemiological Stations in regions, districts and cities. There are over 4,500 such stations throughout the nation. Prevention is the primary emphasis of this system, and its main task is the implementation of sanitary supervision in the country.

Sanitary supervision entails surveillance and control over the observance of flaws in the design, construction and operation of industrial and other work enterprises. It embraces the safety of the work environment, as well as working conditions such as the pace and load of work and the exposure of workers to potential occupational diseases, intoxifications and disabilities. At the field level, this is the responsibility of sanitary specialists which includes chemists, engineers, technologists and technicians who staff the Sanitary-Epidemiological Stations. The preventive element in sanitary supervision rests heavily upon requirements for conformity to explict norms and rules, constant attention to potentially hazardous situations and conditions, and constant monitoring of newly introduced technologies, machiney, chemical substances, etc. The surveillance over functional operations in work settings, monitoring working conditions and associated morbidities, provision of both initial and periodic medical check-ups, the protection of women and youth, and the involvement of workers in various preventive programs are all routine activities under the rubric of sanitary supervision.

It is notable that explicit, compulsory norms and rules govern all ministries and departments for the performance of their responsibilities relevant to maintaining safe and healthy work conditions. Indeed, these norms and rules affect all branches of industry and agriculture in the USSR. The most important complication of these is contained in the published "Sanitary Norms for Designing Industrial Enterprises". This provides standards for the design of structures, buildings, equipment and technological processes. It also provides norms for such things as temperature, lighting, relative humidity, air-flow rates, maximum permissable levels of sound pressure and vibration of electromagnetic waves in the work setting.

Laboratory and other empirical determinations are utilized to provide objective assessments of conditions and to achieve more effective supervision and control. In addition to the laboratories located at Sanitary-Epidemiological Stations, there are, nationwide, over 5,000 laboratories located in large industrial enterprises where labor conditions are kept under constant hygienic control.

A unique requirement imposed by labor hygiene practice in the USSR is for all workers to undergo an initial job-entry medical assessment, and for subsequently routine periodic medical examinations. The preliminary assessment identifies individuals who have conditions which make them vulnerable to health problems on the job, and enables avoidance of exposure to working conditions which would be harmful. The periodic examinations provide the necessary dynamic control over workers' health, and facilitate early detection of emergent conditions.

The trade union's technical labor inspectorates work in concert with the Sanitary-Epidemiological Service, and represent the workers in the surveillance role to ensure conformities with labor protection laws. This represents a partnership with government in labor protection. The unions ensure compliance with agreements emanating from this partnership to prevent accidents and morbidities.

Medical Treatment & Preventive Services

Here, too, we have a stratified distribution of services which reach into the work setting. Large industrial enterprises employing over 4,000 workers, and the more hazardous petroleum, coal-mining and chemical industries employing over 2,000 workers, have their own hospital, out-patient polyclinic, and network of feldscher (physician assistant) health posts located in the factory workshops.

Work enterprises employing at least 800 pesonnel, have medical clinics. Feldscher-staffed health posts are found in settings employing less than 800 workers. In the more hazardous work settings, these health posts are established if there are at least 200 workers.

There are those enterprises sufficiently small as to lack their own medical treatment and preventive services. These rely upon the hospital, polyclinic and feldscher resources of the district or city in which they are located. In this instance, service responsibility rests primarily on what is called a "workshop area physician" based in the polyclinic.

The "workshop area" principle assigns one physician per 2,000 workers (or one per 1,500 for workers in the more hazardous occupations) within the district or city. This physician and a nurse are responsible for in-patient services to workers at the polyclinic, and for out-reach services in the work settings. The latter involves on-site assessment of working conditions, detection and correction of hazardous conditions, and medical assessment of the worker at work. Referrals for in-patient and/or specialized health services are made as necessary, relying upon the available public network of hospitals, clinics and other institutions.

In the Soviet Union, the role of the physician is not only lodged in the traditional in-patient and out-patient settings of medical service, but also penetrates the work environment where the bulk of the population is active and at risk.

Health posts may be staffed by physicians, nurses or physicians assistants. A physician-staffed post meets requirements to provide first aid in cases of tauma, sudden illness or occupational poisoning, and to prevent or respond to occupationally induced morbidities and disabilities. Such a post is usually a satellite of an industrial enterprise-operated service system, or a district or city hospital.

A feldscher-staffed health post is a primary industrial health care unit, covered by either a physicians assistant or a nurse. The main tasks are to deliver first aid, implement prophylactic measures, and assist physicians in medical examinations and preventive activities.

Research

Our labor hygiene research aims to bridge the gap between theory and practice. It is applied to problems of health and prophylaxis. By "prophylaxis", we mean not only those measures designed to strengthen health and prevent illness, but also all those physical and social measures which can create the most favorable conditions for human life which correspond most fully to human psychological and physiological requirements. Our research efforts are consciously designed to further our understanding of these interactions, and to yield practical applications to achieve ideal conditions.

In the USSR there are fifteen institutes of labor hygiene and occupational diseases. In addition, there are the labor protection institutes of the trade union system, the various specialized technological institutes, and the labor hygiene chairs in the medical school. Overall, there are about one hundred such institutions throughout the country devoted to these concerns.

Expansions and improvements in the Sanitary-Epidemiological and the Medical-Sanitary Services derive substantially from the latest developments in hygiene science resulting from research. This involves such things as revision of norms and other standards governing work and rest rhythms, control of occupational diseases and intoxifications, and the like.

We believe that our successes in the field of labor hygiene and the improvement of working conditions are the result of a conscious, purposeful scientific approach to problems, and the emphasis upon practical applications.

Perhaps the most important contribution of this research orientation has been to establish a basis for standardized norms which can be used to define optimum environmental conditions to be achieved, and as criteria for evaluation of what has been achieved. The importance of this for the design and control of prophylactic measures has given direction to labor hygiene research, and elevated the importance of hygienic standardization of the industrial environment and labor activity.

This approach enables establishment of very stringent standards when called for, such as, the absolute prohibition of exceeding permissible levels of exposure when even miniscule excesses are known to produce unfavorable consequences for health.

Our current stage of hygienic standardization of industrial environments is of much broader scope than was the case in the recent past. This now involves the evaluation of work-induced effects upon the human organism which were not even considered previously, for example: the mutagenic and blastomogenic effects on reproductive functions, the fetus and progeny, as well as allergic, teratogenic and other types of long-term effects. The investigation of intermittent effects of certain groups of chemical substances, radio-frequent electromagnetic fields, microclimate, noise, vibration and other elements of the work environment, identified the sometimes adverse role of regime which is now taken into account.

More than fifty years have passed since the first labor hygiene standards were established. Knowledge accumulated during this span of time has produced improved legislation and methods of application which, in turn, have had a demonstrably positive effect upon safety in the workplace and worker health. We have identified and been able to manipulate the parameters of microclimates in work premises. As the validity of various hygienic standards have been established scientifically, they have become incorporated in law and into the State Normative Documents for regulation. We believe our newest and highest stage of establishing labor hygiene norms has been achieved in our widespread standardization of these norms.

In keeping with the established order of things, the introduction of improved standards for safe production, safe production processes and the protection of workers are coordinated with the trade unions.

There is yet much to be done in the USSR to further reduce the incidence and prevalence of various occupational diseases, such as, pneumoconiosis and vibration disease which produce our highest chronic occupational morbidities, neuritis and dust bronchitis.

In the USSR, special attention has always been devoted to the problems of working women, because in our country, women and what they contribute to society, are recognized, respected and valued. Consequently, there has always been an emphasis upon creating favorable working conditions and recreational facilities for women. Throughout the entire system of industry, there has been a concerted effort in collaboration with trade union committees, to improve working conditions for women through the mechanization of manual jobs.

As a result of developments in science and technology, and the increasing mechanization and automation of labor, the problems of "man-and-technology" loom large, and create a new and important focus for scientific labor hygiene research. Modern production methods demand rapid perception, assimilation and

intellectual processing of vast volumes of information on the job, and require swift, correct decisions by the worker involved.

Consequently, Soviet occupational physiologists and psychologists are devoting their energies to the assessment of human capacities and limitations in the environment of modern production processes. They are studying the conditions producing, and the consequences of, overload, stress, and reduced physical activity. They are attempting to develop better distributions of labor functions between the worker and the machine, and better compensations for nervous and emotional stress and the lack of physical activity. They are attempting to develop better compensations for nervous and emotional stress and the lack of physical activity. They are attempting to develop better regimes of work and rest.

Research in this field is also directed to the development of better, more rational forms of organizing work. This includes improved criteria for the recruitment and selection of employees appropriate to the demands and rigours of various types of work.

It is well known that industry is a main source of air, water and soil pollution. By the very nature of their work and responsibilities, labor hygienists contribute a great deal to pollution control and environment protection. Their routine on-site investigations and surveillance aimed to secure safe, healthy conditions for the workers, have the effect of protecting the environment and the health of the population generally.

Over the course of many years, comprehensive five-year plans for improving labor conditions and health have been developed and implemented in the USSR. These plans have an incremental and cumulative effect in the achievement of ultimate objectives. These plans and their implementation are the result of collaborative efforts involving government, management, labor hygiene institutions, and the trade unions. They cover the various levels from industry to workshop, from nation to town.

In this field, as in any other, satisfactory progress is the product of planning and effective implementation.

Conclusion

This presentation has attempted to provide a general summary of the organization of labor hygiene and the prevention of occupational diseases in the USSR. It is hoped this will foster more effective understanding, communication and cooperation between professional counterparts in the Soviet Union and Alaska, and that this, in turn, may contribute something to enhance peaceful relations between our nations.

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Discontinuation of Valium (or Valrelease) is typically as smooth as its start in short-term therapy. However, Valium and Valrelease should be discontinued gradually after more extended treatment. As you diminish dosage, the built-in tapering action of Valium and Valrelease will help avoid rapidly recurring anxiety symptoms and symptoms of withdrawal, and will help ease the patient's transition to independent coping when therapeutic goals have been achieved.

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Before prescribing, please consult complete product information, a summary of which follows:

Indications: Management of anxiety disorders, or short-term relief of symptoms of anxiety. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic. Symptomatic relief of acute agitation, tremor, impending or acute delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in: relief of skeletal muscle spasm due to reflex spasm to local pathology; spasticity caused by upper motor neuron disorders; athetosis; stiff-man syndrome. *Oral forms* may be used adjunctively in convulsive disorders, but not as sole therapy. *Injectable form* may also be used adjunctively in: status epilepticus; severe recurrent seizures; tetanus; anxiety, tension or acute stress reactions prior to endoscopic/surgical procedures; cardioversion.

The effectiveness of diazepam in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

Contraindications: Tablets or capsules in children under 6 months of age; known hypersensitivity; acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: As with most CNS-acting drugs, caution against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals (drug addicts or alcoholics) under careful surveillance because of predisposition to habituation/dependence.

> ***Usage in Pregnancy*: Use of minor tranquilizers during first trimester should almost always be avoided because their use is rarely a matter of urgency and because of increased risk of congenital malformations, as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.**

ORAL Advise patients against simultaneous ingestion of alcohol and other CNS depressants.

Not of value in treatment of psychotic patients; should not be employed in lieu of appropriate treatment. When using oral forms adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increase in dosage of standard anticonvulsant medication; abrupt withdrawal in such cases may be associated with temporary increase in frequency and/or severity of seizures.

INJECTABLE *To reduce the possibility of venous thrombosis, phlebitis, local irritation, swelling and, rarely, vascular impairment when used IV: inject slowly, taking at least one minute for each 5 mg (1 ml) given, do not use small veins,* i.e., *dorsum of hand or wrist, use extreme care to avoid intra-arterial administration or extravasation. Do not mix or dilute with other solutions or drugs in syringe or infusion flask. If it is not feasible to administer Injectable Valium directly IV, it may be injected slowly through the infusion tubing as close as possible to the vein insertion*

Administer with extreme care to elderly, very ill, those with limited pulmonary reserve because of possibility of apnea and/or cardiac arrest; concomitant use of barbiturates, alcohol or other CNS depressants increases depression with increased risk of apnea, have resuscitative facilities available. When used with narcotic analgesic eliminate or reduce narcotic dosage at least 1/3, administer in small increments. Should not be administered to patients in shock, coma, acute alcoholic intoxication with depression of vital signs.

Has precipitated tonic status epilepticus in patients treated for petit mal status or petit mal variant status. Not recommended for OB use.

Efficacy/safety not established in neonates (age 30 days or less); prolonged CNS depression observed. In children, give slowly (up to 0.25 mg/kg over 3 minutes) to avoid apnea or prolonged somnolence; can be repeated after 15 to 30 minutes. If no relief after third administration, appropriate adjunctive therapy is recommended.

Precautions: If combined with other psychotropics or anticonvulsants, carefully consider individual pharmacologic effects — particularly with known compounds which may potentiate action of diazepam, *i.e.*, phenothiazines, narcotics, barbiturates, MAO inhibitors and antidepressants. Protective measures indicated in highly anxious patients with accompanying depression who may have suicidal tendencies. Observe usual precautions in impaired hepatic function; avoid accumulation in patients with compromised kidney function. Limit oral dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation (initially 2 to 2½ mg once or twice daily, increasing gradually as needed and tolerated).

The clearance of diazepam and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

INJECTABLE Although promptly controlled, seizures may return; readminister if necessary; not recommended for long-term maintenance therapy. Laryngospasm/increased cough reflex are possible during peroral endoscopic procedures; use topical anesthetic, have necessary countermeasures available. Hypotension or muscular weakness possible, particularly when used with narcotics, barbiturates or alcohol. Use lower doses (2 to 5 mg) for elderly/debilitated.

Adverse Reactions: Side effects most commonly reported were drowsiness, fatigue, ataxia. Infrequently encountered were confusion, constipation, depression, diplopia, dysarthria, headache, hypotension, incontinence, jaundice, changes in libido, nausea, changes in salivation, skin rash, slurred speech, tremor, urinary retention, vertigo, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances and stimulation have been reported; should these occur, discontinue drug.

Because of isolated reports of neutropenia and jaundice, periodic blood counts, liver function tests advisable during long-term therapy. Minor changes in EEG patterns, usually low-voltage fast activity, observed in patients during and after diazepam therapy are of no known significance.

INJECTABLE Venous thrombosis/phlebitis at injection site, hypoactivity, syncope, bradycardia, cardiovascular collapse, nystagmus, urticaria, hiccups, neutropenia.

In peroral endoscopic procedures, coughing, depressed respiration, dyspnea, hyperventilation, laryngospasm/pain in throat or chest have been reported.

Dosage: Individualize for maximum beneficial effect.

ORAL *Adults:* Anxiety disorders, relief of symptoms of anxiety—Valium (diazepam/Roche) tablets, 2 to 10 mg b.i.d. to q.i.d.; or 1 or 2 Valrelease capsules (15 to 30 mg) daily. Acute alcohol withdrawal—tablets, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; or 2 capsules (30 mg) the first 24 hours, then 1 capsule (15 mg) daily as needed. Adjunctively in skeletal muscle spasm—tablets, 2 to 10 mg t.i.d. or q.i.d.; or 1 or 2 capsules (15 to 30 mg) once daily. Adjunctively in convulsive disorders—tablets, 2 to 10 mg b.i.d. to q.i.d.; or 1 or 2 capsules (15 to 30 mg) once daily.

Geriatric or debilitated patients: Tablets—2 to 2½ mg 1 or 2 times daily initially, increasing as needed and tolerated (see Precautions). Capsules—1 capsule (15 mg) daily when 5 mg oral Valium has been determined as the optimal daily dose.

Children: Tablets—1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use in children under 6 months). Capsules—1 capsule (15 mg) daily when 5 mg oral Valium has been determined as the optimal daily dose (not for use in children under 6 months).

INJECTABLE Usual initial dose in older children and adults is 2 to 20 mg I.M. or I.V., depending on indication and severity. Larger doses may be required in some conditions (tetanus). In acute conditions injection may be repeated within 1 hour, although interval of 3 to 4 hours is usually satisfactory. Lower doses (usually 2 to 5 mg) with slow dosage increase for elderly or debilitated patients and when sedative drugs are added. (See Warnings and Adverse Reactions.)

For dosages in infants and children see below; have resuscitative facilities available.

I.M. use: by deep injection into the muscle.

I.V. use: inject slowly, take at least one minute for each 5 mg (1 ml) given. Do not use small veins, i.e., *dorsum of hand or wrist. Use extreme care to avoid intra-arterial administration or extravasation. Do not mix or dilute Valium with other solutions or drugs in syringe or infusion flask. If it is not feasible to administer Valium directly I.V., it may be injected slowly through the infusion tubing as close as possible to the vein insertion.*

Moderate anxiety disorders and symptoms of anxiety, 2 to 5 mg I.M. or I.V., and severe anxiety disorders and symptoms of anxiety, 5 to 10 mg I.M. or I.V., repeat in 3 to 4 hours if necessary; acute alcohol withdrawal, 10 mg I.M. or I.V. initially, then 5 to 10 mg in 3 to 4 hours if necessary. Muscle spasm, in adults, 5 to 10 mg I.M. or I.V. initially; then 5 to 10 mg in 3 to 4 hours if necessary (tetanus may require larger doses); in children *administer I.V. slowly*; for tetanus in infants over 30 days of age, 1 to 2 mg I.M. or I.V., repeat every 3 to 4 hours if necessary; in children 5 years or older, 5 to 10 mg repeated every 3 to 4 hours as needed. Respiratory assistance should be available.

Status epilepticus, severe recurrent convulsive seizures (I.V. route preferred), 5 to 10 mg adult dose administered slowly, repeat at 10- to 15-minute intervals up to 30 mg maximum. Repeat in 2 to 4 hours if necessary, keeping in mind possibility of residual active metabolites. Use caution in presence of chronic lung disease or unstable cardiovascular status. Infants (over 30 days) and children (under 5 years), 0.2 to 0.5 mg slowly every 2 to 5 min., up to 5 mg (I.V. preferred). Children 5 years plus, 1 mg every 2 to 5 min., up to 10 mg (slow I.V. preferred); repeat in 2 to 4 hours if needed. EEG monitoring may be helpful.

In endoscopic procedures, titrate I.V. dosage to desired sedative response, generally 10 mg or less but up to 20 mg (if narcotics are omitted) immediately prior to procedure; if I.V. cannot be used, 5 to 10 mg I.M. approximately 30 minutes prior to procedure. As preoperative medication, 10 mg I.M.; in cardioversion, 5 to 15 mg I.V. within 5 to 10 minutes prior to procedure. Once acute symptomatology has been properly controlled with injectable form, patient may be placed on oral form if further treatment is required.

Management of Overdosage: Manifestations include somnolence, confusion, coma, diminished reflexes. Monitor respiration, pulse, blood pressure; employ general supportive measures, I.V. fluids, adequate airway. Use levarterenol or metaraminol for hypotension. Dialysis is of limited value.

How Supplied:

ORAL Valium scored tablets — 2 mg, white; 5 mg, yellow; 10 mg, blue—bottles of 100 and 500; Prescription Paks of 50, available in trays of 10, Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25 and in boxes containing 10 strips of 10.

Valrelease (diazepam/Roche) slow-release capsules — 15 mg (yellow and blue), bottles of 100; Prescription Paks of 30.

INJECTABLE Ampuls, 2 ml, boxes of 10, Vials, 10 ml, boxes of 1; Tel-E-Ject® (disposable syringes), 2 ml, boxes of 10. Each ml contains 5 mg diazepam, compounded with 40% propylene glycol, 10% ethyl alcohol, 5% sodium benzoate and benzoic acid as buffers, and 1.5% benzyl alcohol as preservative.

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1983 RESOLUTIONS

ADOPTED BY THE ALASKA STATE MEDICAL ASSOCIATION HOUSE OF DELEGATES
AT ITS ANNUAL MEETING IN CORDOVA, ALASKA MAY 28, 1983

RESOLUTION NO. 83 - 1

SUBJECT: Indemnity Fund for Natural Resource Development Projects

WHEREAS, economic growth and diversification, increased employment and development of Alaska resources is desirable if **it is safe and environmentally sound,** and

WHEREAS, future natural resource development will occur in Alaska in such areas as oil, petrochemicals, agriculture, coal, oil-shale, asbestos mining, and heavy metal mining, and

WHEREAS, future natural resource development will occur in Alaska, and

WHEREAS, general health hazards of development generally fall into four categories:

1) short-term and long-term effects on workers and the general population of exposure to carcinogenic and other hazardous substances;
2) health risks which can occur in the production, handling, storing, transportation, shipment, and disposal of toxic and hazardous materials;
3) acute and chronic effects on air and water quality coming from normal plan operations, fugitive emissions, and accidental spills or emissions of dangerous gases or substances, and
4) health risks such as burns and injuries which require specialized medical treatment, and

WHEREAS, little is actually known about the long-term health risks associated with hazardous and toxic substances associated with natural resource development and that the issue remains a major scientific debate; and

WHEREAS, benefits of resource development can accrue to one population while risks may be imposed willingly or unwillingly on a different population; and

WHEREAS, the development of a natural resource development indemnity fund was a consensus recommendation from the Moot Science Court held during the 7th Alaska Health Congress entitled, "Energy, Health, and the Environment: The Health Impact of Petrochemical Development"; therefore

BE IT RESOLVED, that the Alaska State Medical Association urges the legislature to pass appropriate legislation to require an indemnity fund of natural resource development industrial projects to insure comprehensive and full compensation for all identified risks and resulting effects undergone by Alaska residents.

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1. Proceedings of the Seventh Alaska Health Congress, May 6-8, 1982, "Energy, Health and the Environment" - The Health Impact of Petrochemical Development, Alaska Public Health Association, John Middaugh, M.D.
2. Petrochemical Industry Assessment for the State of Alaska, Interagency Technical Team, September 14, 1981.
3. Issues Deriving from the Implementation of Memorandum of Understanding Between the Dow-Shell Group and the State of Alaska.
4. Alaska Industry Feasibility Study. A report to the State of Alaska, September 9, 1981, the Dow-Shell Group.

RESOLUTION NO. 83 - 3

SUBJECT: Repeal of Mandated Premarital Tests for Syphilis

WHEREAS, the control of diseases affecting the public's health in a cost-effective manner is of the highest priority, and

WHEREAS, a thorough review of the effectiveness of current statutes requiring premarital syphilis serological testing has revealed this requirement to be ineffective in controlling syphilis, and

WHEREAS, the elimination of mandatory premarital syphilis blood testing will allow available public health personnel to increase their efforts to insure that all women receive prenatal syphilis blood tests so that the elimination of congenital syphilis will become a reality, and

WHEREAS, a substantial savings can be realized through the suspension of premarital blood testing without decreasing the effectiveness of venereal disease control efforts, and

WHEREAS, the Venereal Disease Branch of the Centers for Disease Control, Atlanta, Georgia; the Alaska State Medical Association; the Alaska State Hospital Association; the Alaska Native Health Board; and the Southcentral Health Planning and Development Agency are all on record supporting the repeal of Alaska's premarital syphilis blood test requirement, therefore

BE IT RESOLVED, that the Alaska State Medical Association urge the legislature to act decisively and rapidly to repeal the premarital syphilis blood test requirement currently mandated by AS 25.05.102 and AS 25.05.105.

****

1. Felmau, Yehudi M. - Repeal of mandated premarital tests for syphilis: a survey of state health offices. AJPH 1981, 71:155-149.
2. Weisner, P.J. and Kingon, R.J. - Premarital syphilis screening: weighing the benefits. AJPH 1981, 71:160-162.
3. Felmau, Yehudi M. - Should premarital syphilis serologies continue to be mandated by law? JAMA 1978, 240:459-60.
4. Polonof, D.B. and Garland, M.J. - Oregon's premarital blood test: an unsuccessful attempt at repeal. VD News 1979, 4:1-5.

RESOLUTION NO. 83 - 5

SUBJECT: The Health Consequences of Smoking

WHEREAS, thousands of ALASKANS have quit smoking and many others are seeking assistance to stop smoking because they have persuaded them-

selves that it is in their own self interest to kick-the-habit. As exemplars of good health practices and advocates of optimum health for all people, **The Alaska State Medical Association** has moved to adopt and publish widely the following resolution:

WHEREAS, the Surgeon General of the United States has focused the attention of his 1982 report on the Health Consequences Smoking on a single disease entity -- cancer; and

WHEREAS, all scientific evidence links cigarette smoking to several lung diseases and premature death; and

WHEREAS, 120,000 Americans can die of cancer this year because the higher overall cancer death rates that exist among smokers as compared with nonsmokers; and

WHEREAS, smokers run a very high risk of developing emphysema; and

WHEREAS, preventive measures, such as abstinence, prove smoking and avoidance of other harmful substances in the air, can assure an improved quality of life for all ages; therefore

BE IT RESOLVED, that the Alaska State Medical Association issue a call to health workers to become exemplars by not smoking at their work place, and be it further resolved, that the Alaska State Medical Association request all Municipal, State and Federal employees to refrain from smoking in public buildings to provide a smoke free environment for all workers and visitors.

BE IT FURTHER RESOVLED that the Alaska State Medical Association support fully HB 84 and urge the Legislature promptly and decisively to enact HB 84.

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1. Office on Smoking and Health. The health consequences of smoking: Cancer. A report of the Surgeons General. Rockville, Maryland: Public Health Service U.S. Dept. of Health and Human Services, 1982.

RESOLUTION NO. 83 - 6

SUBJECT: In support of Right-To-Know

WHEREAS, few of the 170,000 workers in Alaska know the generic names, toxic effects, current or past exposure, or first aid in the event of accidental exposure to materials they encounter on their jobs; and

WHEREAS, there exists enormous preventive health potential of right-to-know legislation, which would require labeling and worker notification for hazardous substances and mixtures in Alaskan workplaces; and

WHEREAS, workplace substance labeling will benefit workers and health professionals by providing information required to properly recognize, diagnose, and treat acute and chronic illnesses arising from workplace exposures; and

WHEREAS, the American Public Health Association has twice adopted policy statements advocating the importance of right-to-know legislation (1), (2); and

WHEREAS, six states and two Municipalities have already passed right-to-know legislation, including California (1980), Connecticut (1980); Maine (1980); Michigan (1980); New York (1980); West Virginia (1981); Philadelphia, Pennsylvania (1981); and Santa Monica, California (1981); therefore

BE IT RESOLVED, that the Alaska State Medical Association

1. Will assist in hearings, public educaiton, and information preparation and dissemination to support right-to-know in the State of Alaska.

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1. **Informing Workers of Occupational Health Risks.** Policy Statement adopted by APHA Governing Council, November 2, 1977.
2. 8010: **Support for the Proposed Labeling Standard of the Occupational Safety and Health Administration.** Policy Statement adopted by APHA Governing Council, October 22, 1989.

RESOLUTION NO. 83 - 7

SUBJECT: Public and Government Review of New Industrial Development Proposals

WHEREAS, health, safety, and environmental information on new industrial development proposals represent only some of the factors which must be considered by government agencies and the public before decisions are made, and

WHEREAS, these factors are complex and interdependent and require an equally complex and interdependent review process, and

WHEREAS, the State does not have a generic program for reviewing major projects in a comprehensive way, and

WHEREAS, the failure of the State to have a generic program for reviewing major projects results in delay, confusion, and additional expense both to the project proponent and the government and prevents the identification and treatment of problems that are not in a specific agencies jurisdiction; therefore

BE IT RESOLVED, that the Alaska State Medical Association recommends that the State of Alaska establish a generic policy to review new industrial development projects with an emphasis on health, safety, and environmental factors.

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1. Proceedings of the Seventh Alaska Health Congress, May 6-8, 1982, "Energy, Health and the Environment" - The Health Impact of Petrochemical Development, Alaska Public Health Association, John Middaugh, M.D.
2. Petrochemical Industry Assessment for the State of Alaska, Interagency Technical Team, September 14, 1981.
3. Issues Deriving from the Implementation of Memorandum of Understanding Between the Dow-Shell Group and the State of Alaska.
4. Alaska Industry Study. A report to the State of Alaska, September 9, 1981, the Dow-Shell Group.

RESOLUTION NO. 83 - 12

SUBJECT: Thanking the People of Cordova

WHEREAS, Jim Poor, alias Mayor, alias superintendent of St. Elias Ocean Products, donated fresh dungeness crab for the seafood banquet and use of one of their bunkhouses free of charge, and

WHEREAS, North Pacific Processors donated fresh dungeness crab for the seafood banquet, and

WHEREAS, Bob Gill, who is an old timer commercial fisherman, made up a huge jar of pickled salmon as an appetizer and donated five good sized king salmon from his commercial catch to the seafood banquet,

and
WHEREAS, Dick and Marjorie Borer of the Reluctant Fisherman, who reserved most of their rooms months in advance for the convention, have been very accommodating, and offered their superb services in uncountable ways to us in preparing for the convention, and
WHEREAS, Bob VanBrocklin, owner of the Prince William Motel, and his office manager, Fran, have been very cooperative in reserving motel accommodations prior to the convention and have lent us the PA system for our scientific sessions at the Alpha Cinema, and
WHEREAS, Meera Kohler spent hours preparing the banner that was hung across Main Street welcoming the convention members, and John Andersen made several welcome posters that were hung in the store windows, and
WHEREAS, the Elks Lodge and Chef Ed Granitier hosted the Seafood Extravaganza, luncheons and clam chowder feed, a significant exception to their policy of catering only to their own conventions, and
WHEREAS, Ed and Elaine Zeine of the Cordova Community Hospital have been extremely helpful in planning some of the convention events; lending the projector, screen and sheets for the exhibitors tables; helping clean some of the clams for the clam chowder feed; donating halibut for the seafood banquet; helping prepare the salmon for the salmon barbecue; organizing the appetizers for the hosted cocktail hour at the Alaskan; hosting the ASMA Auxiliary luncheon held at the Pioneer Igloo; offering to take people clam digging and halibut fishing; and lending out their Winnebago, free of charge to guests, Dr. & Mrs. McIntyre, from Montana, and
WHEREAS, Cordova High School has been very generous in lending us slide projectors, tables, chairs, and other necessary items needed for the ASMA business meetings, seminars and exhibitors displays and volunteering use of the high school gym on Saturday evening for volleyball, and
WHEREAS, Jim Casement, high school athletic director who set up the gym for volleyball Saturday evening at the high school and stayed there to keep the gym open while 28 people played for several hours, (We really had a great time), and
WHEREAS, Mike Gilman, owner of the school bus, leased out his bus to the convention for airport transportation, guided tour, and transportation to the Black Sheep, and
WHEREAS, Mary Stephens and Donna Platt of the Alpha Cinema let the ASMA lease the theater for exhibitor displays and scientific sessions, juggling their movie schedule to accommodate the dates of the convention and bending the rules a little by leasing the place out for convention use, and
WHEREAS, Lone Janson, local author, served as a guest speaker on the history of the Kennicott Copper mines and Cordova, and
WHEREAS, Garvan Buccaria, of the United States Forest Service, donated his time as guide during the bus trip to Sheridan glacier and mile 27, and
WHEREAS, the Cordova Hospital Auxiliary hosted the Annual ASMA Auxiliary luncheon held at the Pioneer Igloo, and
WHEREAS, Agnes Nichols, long time resident of Cordova, gave a talk on the native heritage in Prince William Sound for the auxiliary luncheon, and
WHEREAS, the ladies of the Moose hosted the ALPAC luncheon at the Moose Lodge, and
WHEREAS, Jon Rush put together an art and scrimshaw show especially for the convention, and
WHEREAS, Bruce Ballom played at Cocktail and hors d'oeuvres at the Alaska Bar Friday night, as well as set up the PA system at the Alpha Cinema for the scientific and business sessions, and
WHEREAS, Rose Arvidson let us visit her unusual home on the waterfront and was a gracious hostess as we toured her gardens, lighthouse, gazebo and learned the fascinating history of the barge and floating cannery that has been her home for the past 10 years, and
WHEREAS, the Cordova Fire Department hosted the salmon barbecue at the firehall, again making ASMA history for site used for medical meeting, and
WHEREAS, the Black Sheep Restaurant and the band there provided a unique Alaskan setting for the President's banquet, and
WHEREAS, the medical community of Cordova has been particularly helpful in hosting the convention, and
WHEREAS, may other folk in Cordova have had many roles large and small in hosting the Association, and
WHEREAS, both Art and JoAnn Tilgner have been involved in every step of the entire convention, from initial idea, through extensive arrangements and planning with ASMA staff, continuing with hands-on, hard work including clam digging and cleaning by the hour, and finally with minute-by-minute shepherding of those attending the convention through a busy, useful and enjoyable schedule,
THEREFORE BE IT RESOLVED, that the Alaska State Medical Association expresses its sincere appreciation to all the fine people of Cordova for all of their acts of friendship in hosting the 1983 ASMA Convention.

RESOLUTION NO. 83 - 13
SUBJECT: Thank the Exhibitors
WHEREAS, many firms with medically-related businesses support the Annual Meeting with fees for display space, and
WHEREAS, exhibitors personally devote several days of their time to attend the Annual Meeting and provide a variety of services to physicians,
THEREFORE BE IT RESOLVED, that the ASMA thank these firms for their continuing support.

RESOLUTION NO. 83 - 14
SUBJECT: Thanking the Speakers
WHEREAS, a highlight of the Annual Meeting is the wide-ranging subject matter presented by our speakers, and
WHEREAS, the speakers come with minimal recompense and often with maximal personal effort and

inconvenience.
THEREFORE BE IT RESOLVED, that ASMA express its sincere appreciation to all the speakers for their contributions to our Annual Meeting.

RESOLUTION NO. 83 - 15
SUBJECT: Thanking the Convention Committee & Staff
WHEREAS, the convention committee has conceptualized, arranged and carried out an excellent Annual Meeting, and
WHEREAS, the ASMA staff has again mastered the logistics of moving the office and dealing with myriad details involved with the Annual Meeting;
THEREFORE BE IT RESOLVED, that the ASMA express its sincere appreciation for all the effort of the ASMA convention committee and staff.

RESOLUTION NO. 83 - 16
SUBJECT: Regarding Modification of Certificate of Need Legislation
WHEREAS, the recent action of David Jones, President of Humana, creates new incentives for continuation of certificate of need legislation, and
WHEREAS, we have been assured that the federal government will continue to demand some type of certificate of need process, and
WHEREAS, the development of such a certificate costs the medical institutions and ultimately the general public a large amount money.
THEREFORE BE IT RESOLVED, that the ASMA study alternatives and proposed modifications to make certificate of need a cost effective process.

RESOLUTION NO. 83 - 17
SUBJECT: Opposing Drunk Driving
WHEREAS, drunk driving is involved in over fifty percent of road deaths, creating a medical problem of epidemic proportions,
WHEREAS, present legislation, prosecution, and sentencing do little or nothing to reduce the problem,
THEREFORE BE IT RESOLVED, that the Alaska State Medical Association seek legislation reducing the alcohol blood level permitted for driving to 0.05 percent, mandating vehicle confiscation, requiring prosecution of all drunk driving charges and prohibiting suspension or limiting of sentence for drunk driving conviction.

RESOLUTION NO. 83 - 18
SUBJECT: Humana Hospital Commendation
WHEREAS, the Humana Hospital has recently completed one year of experience in Anchorage, Alaska; and
WHEREAS, Mr. David Jones, President of Humana Corporation, recently publicly states his goals of expansion and control of medical services along strictly business lines;
THEREFORE BE IT RESOLVED, that the ASMA commends the Humana Corporation for candor in making us aware of their goals; and
BE IT FURTHER RESOLVED, that physicians be encouraged to use caution and restraint in participating in advertising or other schemes designed to further corporate goals.

RESOLUTION NO. 83 - 20
SUBJECT: Support for WAMI Program Increase
WHEREAS, the State of Alaska supports Alaskan residents participating in the WAMI Medical Education Program; and
WHEREAS, the number of qualified applicants has increased and available positions remained the same (10 students); and
WHEREAS, Alaska's population is increasing;
THEREFORE BE IT RESOLVED, that the ASMA support an increase in the number of WAMI students entering the program from 10 to 15.

RESOLUTION NO. 83 - 21
SUBJECT: Payment in Full From the State of Alaska
WHEREAS, the State of Alaska Medicaid and general relief medical programs pay full fee for services other than physicians; and
WHEREAS, other health professionals (dentists and pharmacists) are paid in full their usual and customary charges;
THEREFORE BE IT RESOLVED, that ASMA request the legislature and all state agencies to pay the physicians' full fee for services rendered to any Medicaid recipient.

RESOLUTION NO. 83 - 22
SUBJECT: Letter of commendation to David Beal, M.D.
WHEREAS, David D. Beal has done an outstanding job in arranging bank loans, interior decorators, contractors and in general coordinating the remodeling and expansion of the ASMA office; therefore
BE IT RESOLVED, that the Alaska State Medical Association thank Dr. David Beal for donating his time and expertise in the ASMA office construction project.

RESOLUTION NO. 83 - 23
SUBJECT: Special Commendation to JoAnne Tilgner
WHEREAS, she has spent countless hours in proposing, planning, organizing, arranging, coordinating and accomplishing the ASMA Annual Meeting, and
WHEREAS, she has accomplished this while also serving as full-time wife, mother and office manager;
THEREFORE BE IT RESOLVED, that ASMA offer a very special commendation to JoAnne Tilgner for all her achievements, and our sincere appreciation for all her efforts on our behalf.

RESOLUTION NO. 83 - 24
SUBJECT: Preserving a Record of Medical History
WHEREAS, much of the history of medicine in Alaska is unrecorded, and
WHEREAS, with each day each of us is one day closer

to the grave and less likely to be able to record that history, and

WHEREAS, each of us holds much direct and hearsay information, both pleasant and unpleasant honoring and defaming, about ourselves and about many other members of the profession;

THEREFORE BE IT RESOLVED, that each of us now record for any present or later use of the medical association (including publication through any agent) all memoirs, stories, recollections of others and of medical institutions, and

BE IT FURTHER RESOLVED, that the medical association shall annually rewrite or update the history of medicine incorporating the bits and pieces from each member's recollections and reminicences to make a comprehensive, confluent, and detailed history and biography.

A.H. ROBINS 1983 COMMUNITY SERVICE AWARD

This year's recipient of the A.H. Robins Community Service Award has a remarkable variety of accomplishments and activities. He came to Alaska in 1975 as an officer in the United States Public Health Service, a refugee from Pittsburgh by way of Chicago, the Phillipines and Albuquerque. He bumbled into town, finding abandonment of required uniforms in the Indian Health Service, and quietly established himself as a competent and caring pediatrician.

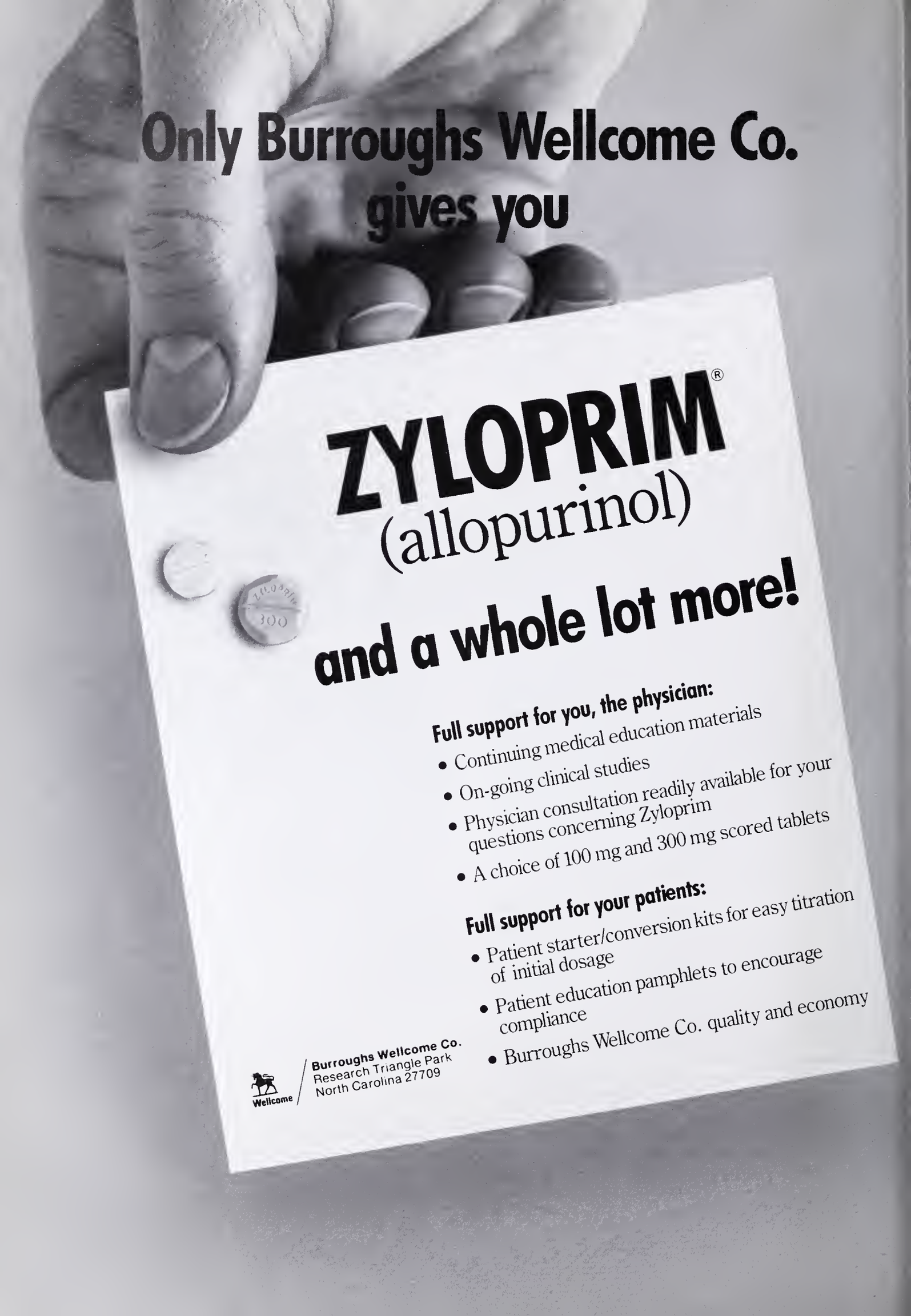
His interests rapidly carried activities beyond the clinical into community service, the guiding principal being to do what needed to be done. In many circumstances it was not so much a matter of volunteering as simply recognizing a problem and going to work on it. Before cataloging a few of his service activities it would be appropriate to tell you a bit more about the recipient as a person. Ever a student, and with his foundation firmly in the Jesuit tradition, he is an encyclopedia of information on a broad range of subjects. With considerable dry sense of humor and ability to deftly turn a phrase, he is quite capable of taking the unwary listener from firm grounds of fact to soaring flights of fancy until he cannot suppress a wry smile that betrays his subterfuge. While managing ideas and practicing medicine superbly, he is almost helpless when confronting a machine. Intellectually he contructs skyscrapers of logic and reason; mechanically he barely piles blocks. Sometimes his rambling through the world approaches an art form. A few years back he caught what was probably an Alaskan record cutthroat trout. His feat was discovered only some months later and then quite by accident when the fish was taken gutted and gilled from the freezer to be served to guests for dinner. An angler among them was amazed by the size of the fish and insisted that it be weighed on an official scale. Even in its disemboweled and freeze-dried state it was the second largest cutthroat caught in the state that year, missing the top by a few ounces.

Rather than a single grand undertaking his community involvements are a myriad of often thankless tasks he has done cheerfully and well. In medicine he has served as local medical society officer in every position, as hospital chief of staff, as medical director of the local nursing home (yes, nursing home), as physician representative on countless committees, and as a member of the Alaska State Medical Board.

In the community he has served as a board member of the public FM station, as an active member of the local and regional conservation societies, and most recently as a newly elected member of the local school board, capping several years of service on various school councils and committees.

In recognition of his wide-ranging committment to serving other both within and outside of medicine, this year's A.H. Robins Community Service Award Winner is Thomas Lawrence Conley of Ketchikan.

Prepared by David E. Johnson, M.D.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AUXILIARY NEWS
Marge Muzzall

ANNUAL MEETING

It was encouraging to have representation from so many parts of our state at the meeting. The broad representation stimulated a great deal of interest and discussion following the reading of a letter from Anchorage Auxilian, Gwynneth Wilson. Mrs. Wilson is chairman of the Anchorage Task Force on the Silver Anniversary of Alaska Statehood. The entire group expressed interest in exploring the possibilities of an Auxiliary sponsored project pertaining to a history of medicine.

CONVENTION FOLLOW-UP

In addition to enjoying many of the films and lectures offered by the Alaska State Medical Association, Auxiliary members participated in their organized program as well as informal gatherings. Everyone enjoyed the morning walk to the waterfront home of local artist/gardener, Rose Arvidson. Built on an early day barge, her home is surrounded by gardens and has its very own gazebo. The luncheon at the Pioneer Igloo was catered by the hospital auxiliary. Their homemade quiches and desserts were the best ever! Our luncheon speaker was local native leader, Agnes Nichols. A grandmother now, Agnes was born in Cordova to a native mother and Danish father. The entire group was moved as we listened to her tell in simple words the story of her rich and full life. It was a privilege to be allowed to share her story.

Cordova will always be a special place to those who attended the Alaska State Medical Association Convention May 27-31. It was delightful to enjoy the peaceful community and slower pace for those who came from busier places. Cities have their appeal but only a small town can generate the warmth, friendliness, and community spirit that Cordova showed our convention. Throughout the community our welcome was warm and genuine. It would be impossible to thank each of the Cordova residents who helped to make the ASMA Convention such a great success because it really seemed everyone in town was helping in some way.

SCHOLARSHIP WINNERS

The Alaska State Medical Association Auxiliary is pleased to announce the recipients of two $750 scholarships. The Auxiliary awards the scholarships annually to students pursuing a health related career.

This year one $750 scholarship is awarded to Tou Theng Yang, a 1983 graduate of Metlakatla High School. Tou has been an outstanding student as well as an active participant in sports, student government and community activities. Memories of war, disease and starvation during his early childhood in Southeast Asia have motivated Tou to choose a career in medicine. He hopes to help his fellow Laotian-American people. Tou Theng Yang plans to attend either Crieghton University or the University of Iowa.

The other scholarship is awarded to Chiquita Cothron, the daughter of Mr. & Mrs.Joe M. Cothron of Anchorage. Chiquita is a 1983 graduate of Diamond High School. Miss Cothron has demonstrated outstanding ability in scholarship and leadership. She has actively participated in many school organizations, student government, community activities, and has been awarded many times for her generosity and effort. Chiquita plans to attend Stanford University, study medicine, and ultimately become a pediatrician.

Alternates for the two scholarships are Carol Bline and Catherine Phillips.

ANCHORAGE MEDICAL SOCIETY AUXILIARY NEWS

PECABU, the Auxiliary Car Seat Loaner Program is almost out of car seats! Of the 500 seats used to open the program on April 4th, over 400 have been loaned out to Anchorage parents. The overwhelming response to the program has made dispersement of the seats much quicker than anticipated. The majority of the seats will not be returned until December. The Auxiliary is embarking on another intensive fund raising effort in order to buy more car seats for the program. Alaska Airlines again will donate the cost of shipping the seats to Anchorage. Over 40 Auxiliary members actively work in the PECABU offices at Providence Hospital and Humana Hospital Alaska. As many as 13 seats have been distributed in one day at one office. The Auxiliary continues to work closely with the Alaska StateTroopers, Kathy Wolgemuth (Publicity Director), and Child Safety Passenger Association members, Peggy MacInnes and Carmen Fisher. PECABU (**P**rotect **E**very **C**hild **A**nd **B**uckle **U**p) is an exciting and rewarding project for the Anchorage Auxiliary.

Over 600 runners participated in the 3rd Annual Shape Up For Life Run on May 7th. Auxiliary members not only organized and staffed the race, they also ran. Patti Nathanson, Anchorage Auxiliary past president took 3rd place of all women runners and 1st place in her age category, 20-29. Margaret Lanier, daughter of Anne & John Lanier placed first in the 14 and under category; Judy Gower, 6th and Aaltje Smith 9th in the 30-39 category, Susan Wriggly, 8th in the 40-49 category and Doris Hood 3rd in the over 50 category. Over 40 physicians and auxiliary members were runners this year. Special thanks to Run Chairman, Sue Mues, John Mues for his behind the scenes support, and the many who volunteered their time.

The Auxiliary concluded its 1982-83 formal activ-

ities with a well-attended luncheon at The Tower Club. The food was delicious and the view spectacular! Officers; President-Elect, Fran Marbarger; Vice-President, Kathy Wilder; Corresponding Secretary, Aaltje Smith; Recording Secretary, Lynn Ragle; Treasurer, Maureen Merchant; Hospitality Chariman, Lesley-Morresey were commended for their successful and active year. Marge Muzzall, State President was given special words of praise for her outstanding efforts during the year as well. New officers elected were: Raye Scully, President-Elect; Gwen Gieringer, Vice-President; Corresponding Secretary, Deb Swift; Recording Secretary, Cathy Garner; and Maureen Merchant, Treasurer. Congratulations!

Lorrie Horning
Past-President

STETHESCOOPS
by the Stethesnoops

Buff Burtis got a new boat. Anethesiologist Seuffert put his on the rocks - or is that just a rumor?

Betsy Tower ran in the Alaska Womens Run. So did Patti Nathanson.

Ed Mohn finished #60 in the Triathelon in Hawaii. Where is George Stransky running now?

The Figi Islands were a recent target for the Gills as well as John Snyder and his new bride, Robin.

Watch changes of address. A group of internists are off to Humana where the rent is cheaper than where they were - their own building.

Jan Kastella has a new houseboat with a sail, moored in Juneau. Will she really need to keep it there now?

Rick Farleigh wants to get educated so found himself a teacher.

Beth Baker joined the bicycle racers to Mt. McKinley (Denali if your prefer). She made it too.

What is the story of turmoil in the Ketchikan Wilson Clinic - again?

We were pleased to see Stu Rabeau, best known for his time in Kotzebue, at the last Anchorage Medical Society dinner. Now we know **who** is in Juneau.

Hedric had to hire someone from the East Coast to help potty train his daughter while Kristin was away.

Sig Alpha and Bobbie finally tied the knot. Sig says they got married in Mexico so it wouldn't be legal.

Louene Boyle moved to Juneau taking off four months to sail - she and her new husband and old friend. The secret marriage was found on reading the Anchorage Daily News.

Who recently split and now has a live-in secretary?

One of the GYN doctors hasn't crashed in the last six months.

Who the heck are the Cretins?

It has been reported by a fairly reliable source that two of our doctors have taken up preying with their patients.

Does Dr. Frost really plan to put up a new building - to be called the New View?

Barbara Riley Asher, a very promising young physician, is doing a locum tenens in Sitka - doing a splendid job we hear.

Glennallen Hospital is expanding.

Dillingham and Bethel domestic problems are settling down at last.

Dr. John Hanley is working on increasing the population.

Help Save a Child's Life

The PECABU poster baby shown here is Jason Hanley, with his mother Gwen Hanley. They are the son and wife of John Hanley, M.D., Emergency Room Medicine, Providence Hospital.

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_____.

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PHYSICIAN SELF-ASSESSMENT

CHOOSE THE ONE MOST APPROPRIATE ANSWER

1. Diagnosis of premature labor is based on all of the following except:
   a. Uterine activity with cervical changes consistent with labor.
   b. Immature L/S ratio.
   c. Presence of PG in the AF.
   d. Ultrasonic measurements consistent with 32 weeks gestation.
   e. Uterine contractions.

2. Relative or absolute contraindications to inhibition of labor with tocolytic agents include all of the following except:
   a. Fetal death.
   b. Severe toxemia.
   c. Fetal malformation incompatible with survival.
   d. Presence of intrauterine infection.
   e. Mature L/S ratio with PG present.
   f. Premature separation of the placenta.
   g. Twin gestation at 30 weeks in premature labor.

3. Several clinical characteristics are useful in estimating duration of pregnancy and indirectly fetal maturity. These include the following except:
   a. Menstrual history.
   b. Uterine size during the first trimester.
   c. Quickening.
   d. Fetal heart heard with a stethescope.
   e. Fetal size.

4. Lymphatic drainage of the vulva include the following except:
   a. Medial and lateral inguinal nodes.
   b. Medial and lateral femoral nodes.
   c. Inguinal.
   d. Femoral.
   e. External iliac.
   f. Obturator nodes.

5. A large 8 x 10 cm abdominal pelvic mass in a 9 year old prepubertal female requires all of the following except:
   a. Laparoscopy.
   b. Laparotomy.
   c. Hormonal suppression with Depo-Provera because the most likely diagnosis in young women is an endometrioma.
   d. Preoperative radiographic and sonographic evaluation.
   e. Preoperative pregnancy test.

6. Genetic amniocentesis is indicated for the following except:
   a. Advanced maternal age.
   b. Advanced paternal age.
   c. Previous trisomic infant.
   d. Previous stillbirth.
   e. Clomid induction of pregnancy.
   f. Habitual aborter.

7. Primary dysmenorrhea should be ameliorated by the following except:
   a. Childbirth.
   b. Oral contraceptives.
   c. Abortion.
   d. Antiprostaglandins.
   e. Danocrine.
   f. Exercise.
   g. Cryosurgery.

8. Beta-sympathomimetic therapy for premature labor maybe associated with serious complications including all of the following except:
   a. Pulmonary edema.
   b. Myocardial ischemia.
   c. Cardiac arrhythmia.
   d. Hypotension.
   e. Hyperglycemia.
   f. Decreased serum potassium.
   g. Increased hemoglobin concentration.

9. Flagyl (Metronidazole) is an important drug for gynecological infections. All of the following remarks are true except:
   a. Indicated for anaerobic pelvic infections.
   b. Indicated for treatment of H. Gardnerella vaginitis.
   c. Indicated for treatment of Trichomonis vaginitis.
   d. Rectal administration results in serum levels above accepted therapeutic requirements.
   e. Is carcinogenic in rodents.
   f. May be used safely in the first trimester of pregnancy.

10. Oligohydramnios is an important diagnosis for it is often associated with all of the following except:
    a. Urinary tract abnormalities.
    b. Intrauterine growth retardation.
    c. Post maturity syndrome.
    d. Posterior urethral valves (bladder neck obstruction).
    e. Potter's syndrome.
    f. Polycystic kidney disease.
    g. Fetal hydrops.

11. Ultrasonographic evidence of severe intrauterine growth retardation in mother with preeclampsia would include all of the following except:
    a. Reduced abdominal circumference.
    b. Abnormal head to body ratio.
    c. Oligohydramnios.
    d. Premature aging of the placenta.
    e. Lag in serial increase in the BPD.
    f. Lag in serial increase in femur length.
    g. Biophysical score of 10.
12. Marijuana use during pregnancy can have all of the following effects except:
    a. Normal outcome.
    b. Five fold increased risk of infants with features of fetal alcohol syndrome.
    c. Impaired secretion of prolactin.
    d. Increased evidence of preeclampsia.
13. The indications for episiotomy have not been scientifically tested but the following statements are true except:
    a. Indicated for all primparpus deliveries.
    b. Adequate episiotomy is necessary for vaginal breech delivery.
    c. Wise to do an episiotomy when forceps are used.
    d. Not required when labor is normal and delivery is spontaneous.
    e. Prevents development of utero-vaginal prolapse, rectocele and cystocele.
14. Glycohemoglobin (HbA_1c) is helpful in the obstetrical patients for the following reasons except:
    a. Indicator of blood glucose regulation during the preceding one to two months.
    b. Excellent screening test for diabetes in pregnancy.
    c. Should be monitored in addition in blood glucose.
    d. Preconceptual HbA_1c level is normal and the patient's diabetes is well controlled, congenital anomalies may be prevented.

X-RAY OF THE QUARTER

A thin young lady presented with intermittent feelings of coldness of both upper extremities, associated paresthesias and numbness. These were noted upon awakening in the morning and improved fairly rapidly. Clinically it was possible to feel a diminished radial pulse bilaterally with exaggerated turning of the patient's head. She was referred to the Radiology Department for a digital subtraction angiogram. Figure 1 shows imaging of the aortic arch and great vessels including the proximal aspects of both subclavian arteries. The vessels are well demonstrated and are normal. The intravenous catheter can be seen at the lower left hand edge (arrow), the catheter having been placed in the right atrium. Figures 2 and 3 are subtraction images with the patient's head turned to the right then the left.

What abnormalities are demonstrated in figures 2 and 3?

Figure 1

Figure 2

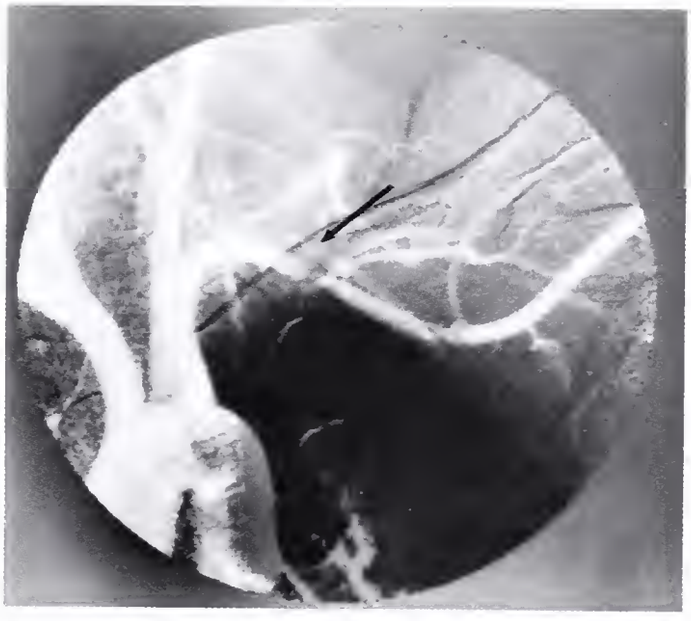


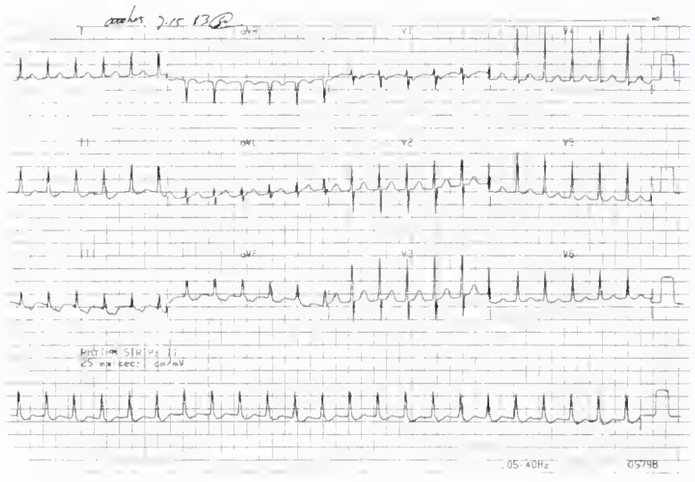
Figure 3

ELECTROCARDIOGRAM OF THE QUARTER

Mrs. R presented to the emergency room with electrocardiogram "A" and the following story: During March, 1983 she had been flown from a remote station to Anchorage for evaluation of multiple aches in the chest unrelated to exertion, periodic pounding in the chest and influenza-like symptoms. No abnormalities were found and she returned to the bush. Subsequently she continued to have episodic chest pounding associated with weakness but no pain. Twenty-four hours before flying into Anchorage for this emergency room visit she again developed pounding in the chest. It did not resolve spontaneously and she began to be weak, fatigued and dizzy on standing. A friend gave her several 10 mg Inderal tablets. A paramedic recorded her blood pressure at 80/60 with a pulse rate of 150, thought she was in shock and evacuated her to Anchorage twenty-four hours after the onset of her cardiac symptoms.

Questions:

1. What is the heart rhythm(s) on electrocardiogram "A"?
2. What are the preferred acute and chronic treatments for the arrhythmia?



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1983 ANNUAL MEETING
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On behalf of the Alaska State Medical Association, we wish to express our sincere thanks to the above companies for their support of our meeting.

Art Tilgner, M.D., President
Richard Parry, M.D., President-Elect

EDITORIAL

For those unable to share in the enlightenment of the audience attending the 8th Health Congress of the Alaska Public Health Association, Alaska Medicine is publishing in full the text of the paper presented by Nicholai Izmerov, M.D. on Labor Hygiene and Prevention of Occupational Disease in the USSR.

Many readers may experience with the editors, passing from paragraph to paragraph, a sense of compounding deja vu, and hope some specific examples would emerge as the thesis enlarges on the quest for a utopian environment. One wonders how the various laws, decrees, orders, rules, instructions, orienting principles and norms have contributed to the rumors of increasing pollution of the Caspian Sea and Lake Baikal, once self-cleaning and the purest in the world; how, considering the American parallel of OSHA, the entangling regulations contribute to productivity, incentive and initiative both of the health and industrial workers; what real progress has been made in defined industrial disease; what the function is of the Medical Workers' Unions and how it actually does relate to government.

There are certainly more questions provoked by the paper than answers offered. Our Russian collegues plan to return next year. There is talk of an exchange visit. Hopefully this paper will provide seed nuclei for a better understanding and more concrete discourse.

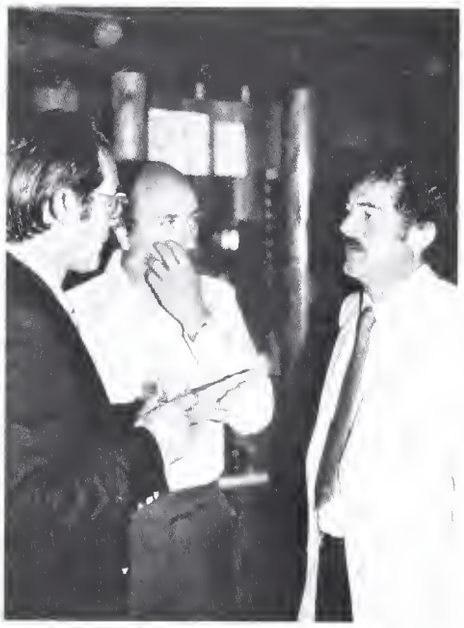
HIGHLIGHTS OF THE 1983 ASMA CONVENTION IN CORDOVA

ASMA Registration at The Reluctant Fisherman

Mary Hale dawns the famed JoAnn Tilgner "Fish hat."

Hostesses JoAnn Tilgner and Elaine Zeine of Cordova.

ASMA Immediate Past-President Art Tilgner.



Dave McGuire and Ray Gills instructing lobbyist Rick Urion.

The James' just "off the boat."

AMA President-Elect Frank Yerka receives Alaskan gift at the President's Banquet.

The Sternhagens, Heins, Hornings, Blankenships and Declan Nolan toast the Alaska Hotel.

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William H. Bowers, M.D.
ALASKA STATE MEDICAL ASSOCIATION
4107 Laurel Street #1
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LETTERS TO THE EDITOR

Dear Editor:

It is vital that our members be kept aware of the critical situation physicians face with the legislative process. In our present legislature there are bills to repeal the Certificate of Need legislation. We were supportive of this bill at first but after Mr. David Jones of Humana declared he would expand if there were fewer controls it becomes apparent that we must rethink our position. There is a legislative committee being formed to study this issue more completely as per Senator Bennett's resolution.

For physicians to participate and be heard in a meaningful manner we must establish good rapport with legislators. It is a fact that legislators help those who support them with money and votes. Obtaining financial backing to get elected is a continuous process for legislators and they are most sensitive to support. To continue the work we have started it is necessary for all seven hundred physicians in Alaska to join ALPAC. When a contribution is sent to the campaign fund we can say this money is from ALPAC, an organization of 700 members. The money will be a small amount but the number of votes represented is considerable. In this manner we can remain a force in the political arena. We must deal from a strong position and we must develop a stronger force with which the legislators contend.

One of the pending subjects of legislation, the Prospective Payments issue, in which physicians are reimbursed through the hospitals for patient care suggest 1984 is upon us with total control by hospitals and the government. We must keep our independence in this area also.

As major corporate hospitals battle with their large financial warchests for the medical market we, as physicians must remain an independent force. Law schools are producing greater numbers of lawyers and will bring greater pressure on medical malpractice litigation. Obviously, there must be constant surveillance in this area.

The way we can remain independent will be by controlling legislation in the medical area. This control comes only through effective lobbying and it is imperative to have a lobbyist who has access to legislators and to the administration. I request all physicians in Alaska join the Alaska State Medical Association and support ALPAC with their $100 contribution.

Sincerely,
David D. Beal, M.D.
Chairman, ALPAC

REPLY:
Dear Dr. Beal:

It would seem a prudent intelligent physician practicing more than the next 2 years would be most eager not only to join ASMA but also to support ALPAC. Those who protest what function does the ASMA fulfill and why should they join will herald the loudest cries of righteous indignation when Big Brother does take over. Rest assured at least they have been warned.

Wm. H. Bowers, M.D.
Editor

Dear Editor:

Several multi-national corporate conglomerates are seeking individual donations from Alaskans, other Americans, and people around the world. While donations of any amount are accepted, the privilege of donation is granted only in increments of approximately $1 each. When larger donations are accepted, they are accepted in unit amounts somewhat smaller. When donations are accepted in points of convenience, they are usually in the highest units of all.

Having been the beneficiaries of donations of considerable magnitude for many years, the conglomerates are always looking for new ways to find more donors. Consequently, they employ quite a number of attractive young men and women as models, showing them with horses, racing cars, sailboats, and miscellaneous other adult toys.

In exchange for these donations, the corporation provides the means to shorten the donors life; increase the likelihood of lung disease, heart disease and cancer; foul his or her breath; yellow their teeth; burn holes in their clothes and furniture; irritate non-smoking friends; and litter the landscape with bits of paper and cellophane.

Advertised benefits, while subliminally expressed, apparently include larger breasts, youth, increased virility, generally increase sex appeal, the ability to ride horses in snow drifts, a wardrobe full of designer clothes and the deep brown assurance that one has come a long way. The only explicitly stated advertising claim is that "the surgeon general has determined that cigarette smoking is hazardous to your health."

The American Tobacco Institute has taken pains to point out to everyone that whether or not to smoke is an adult decision. The request from the tobacco company is clear; your money and your life. An appropriate response would seem intuitively obvious to the casual observer.

Sincerely,
David E. Johnson, M.D.

REPLY:
Dear Dr. Johnson:

We of the editorial staff applaud your efforts on non-smoking. Please save enough plants for an occasional Veracruz after dinner in the privacy of our studies.

Wm. H. Bowers, M.D.
Editor

ANSWERS to PHYSICIAN SELF-ASSESSMENT

1. e
2. g
3. e
4. f
5. e
6. b
7. g
8. g
9. f
10. g
11. g
12. d
13. e
14. b

ANSWER TO X-RAY OF THE QUARTER

Figures 2 and 3 nicely demonstrate severe narrowing of the subclavian artery behind the first rib compatible with thoracic outlet syndrome.

Thoracic outlet syndrome has been described for many years. It was first successfully operated on in 1905. The essence of the syndrome is constriction or compression of the brachial plexus, subclavian artery, or subclavian vein in the area of the first rib-clavicle. Cervical ribs are sometimes present.

The subclavian artery exits the thorax by passing over the first rib between the scalenus anticus muscle anteriorly and the scalenus medius muscle posteriorly. This is also the route of the brachial plexus. Symptoms are most often seen in women in their twenties and thirties. Local anatomic variations such as a wide first rib and prominent scalenus anticus muscle near its insertion into the first rib may contribute to the syndrome. Cervical ribs sometimes associated with a ligamentous structure inserting into the first rib may also be present. The syndrome can also be seen following fracture of the clavicle or first rib. Objective diagnosis is by vascular imaging which can be successfully obtained with digital subtraction technique as an outpatient. Treatment is usually surgical although sometimes exercise programs to strengthen muscles of the shoulder girdle are successful.

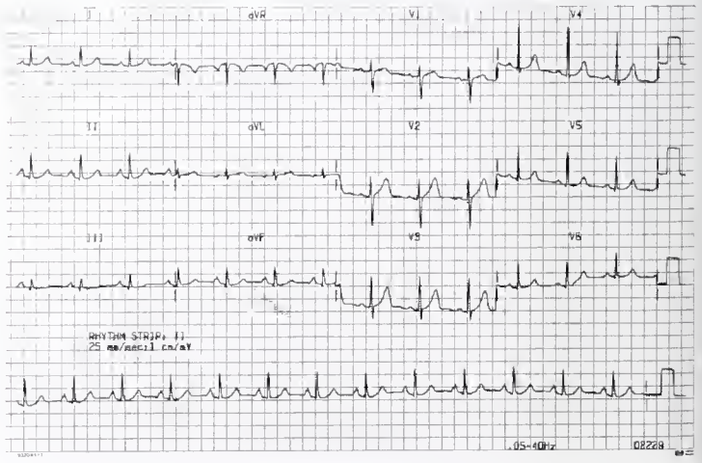
ANSWERS TO ELECTROCARDIOGRAM OF THE QUARTER

1. Clearly Mrs. R has a tachycardia of some sort. Since ventricular tachycardias have wide, bizarre QRS complexes this must be a supraventricular tachycardia, that is a tachycardia which is generated from impulses either arising in the atria or atrio-ventricular junction tissue.

Electrocardiogram "A" demonstrates a ventricular rate of 145. Atrial waves are seen in the region of the ST-T wave in lead III. It is possible that the atrial wave in the ST segment is responsible for triggering the following QRS complexes. If this is the situation the PR interval is approximately 0.28 seconds. It is also possible that the rhythm is generated in the junctional tissue with impulses traveling downward to the ventricle and upward to the atria, arriving at the atrial level after the ventricles causing the atrial waves to follow the QRS complexes. Yet another possibility is atrial flutter. Atrial flutter generally has an atrial rate of 300. With 2:1 A-V block and atrial flutter one would expect a ventricular rate of 150. Two to one A-V block is common with atrial flutter and would mimick the present electrocardiogram. Frequently (as could be the situation here) it is difficult to identify the pathognomonic "saw-tooth" flutter waves so the electrocardiographer must be open to other possible rhythm disturbances as we have done already.

2. Fortunately treating patients with supraventricular tachycardia characterized by a rapid regular rate and rhythm, narrow QRS complexes and relative clinical stability is now virtually the same regardless of the electrophysiology. Atrial tachycardia, junctional tachycardia and atrial flutter with block all respond very nicely to intravenous Verapamil. Usually 5 mg infused over several minutes causes reversion to sinus rhythm. (Mrs. R. was given 5 mg Verapamil in the emergency room and 5 minutes later her electrocardiogram reverted to normal -- electrocardiogram "B".) Sometimes a second 5 mg bolus is needed. Rarely there are side effects. It is reported that intravenous Verapamil should be given cautiously to patients with A-V conduction abnormalities, especially if propranolol has already been administered.

Still the most convenient, inexpensive and possibly most efficacious drug for chronic treatment of recurrent supraventricular tachycardias is digitalis. If digitalis alone is not completely effective, propranolol 80 mg, given once a day in the sustained release form may be added. Continuous treatment with oral Verapamil is rarely needed.



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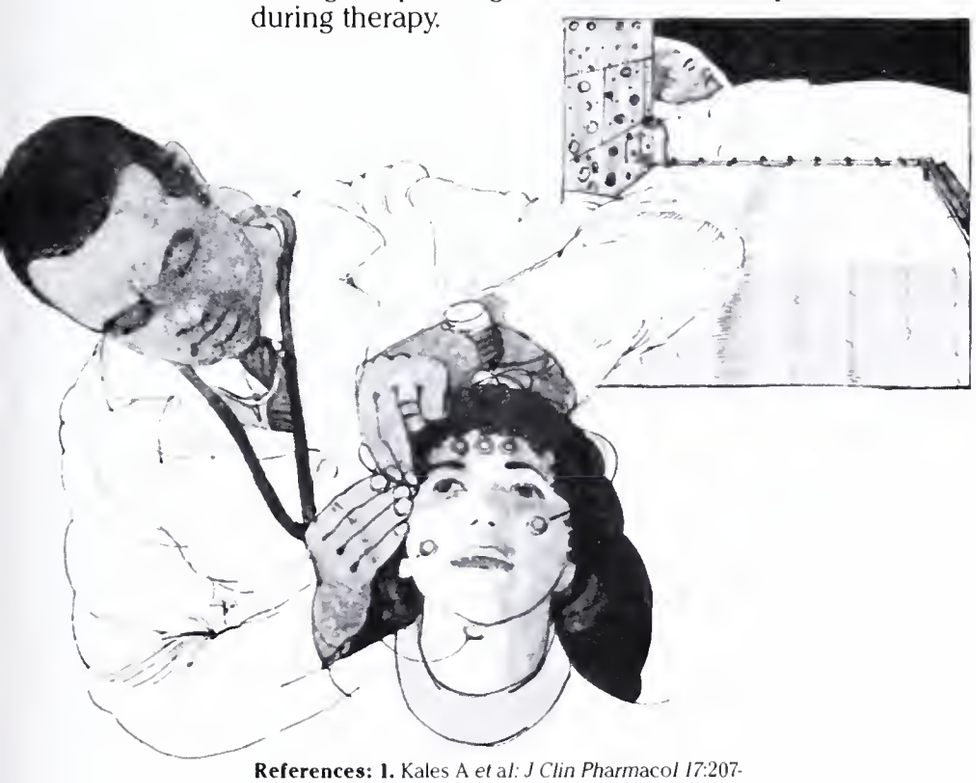

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ALASKA MEDICINE

Official Journal of the Alaska State Medical Association

4107 Laurel, Anchorage, Alaska 99504

Volume 25 | October/November/December 1983 | Number 4

ALASKA MEDICINE is the quarterly journal of the Alaska State Medical Association; Alaska Medicine, 4107 Laurel, Anchorage, Alaska 99504. *ALASKA MEDICINE* is printed by Northern Printing, Co., Inc., 655 Warehouse Avenue, Anchorage, Alaska 99501.

About the cover: *Dall Ram in Denali National Park* by Mark Newman, M.D.

SUBSCRIPTION PRICE: $12.00 per year
Single copies: $4.00 each

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192 IRIDIUM AFTERLOADING APPLICATOR FOR CARCINOMA OF THE NASOPHARYNX

Charles J. Sternhagen, M.D.

Abstract

In Alaska the incidence of nasopharyngeal carcinoma among Eskimos and Indians is approximately fifteen times the national average. The tumor is frequently rapid growing. To preserve the mandible and the temporomandibular joint, treatment planning frequently includes the use of flexible and expandible nasopharyngeal applicators which can be quickly fabricated in the operating room. To boost the dose to the nasopharynx to tumoricidal levels, afterloading with 192 iridium ribbons can be done following initial external beam therapy. The applicators are also ideal for use when retreatment for recurrences is necessary.

The flexible and expandible material called Reston holds the implant securely in place. Centrally placed catheters within the implant maintain the implant position in relation to the external nares when the catheter bag is inflated. These centrally located catheters within the flexible implant also maintain the nasal airway. Case demonstration and clinical indications of this method are presented.

Introduction

Nasopharyngeal carcinoma (NPC) is an important malignancy among Alaska Natives (Eskimo and Aleut) where it occurs with an incidence of 13.5 per 100,000 in males and 3.7 per 100,000 in females. This is approximately fifteen times the expected incidence among non-Natives. The overall five year survival rate is 48% (1). Several important environmental risk factors and prognostic factors may be related to the high incidence of NPC in Alaska where an association has been reported. A brief discussion of these factors is important to understanding both the underlying cause of NPC and the rationale for using radiation implantation of the NPC on a routine basis. In Alaska, some of these factors may include eating salt fish, cigarette smoking, exposure to other noxious inhalants, and exposure to Epstein-Barr virus (EBV) as evidenced by the finding of elevated antibody levels. Noncancerous tissues removed from successfully treated patients were negative for EBV by EBNA staining and DNA hybridization methods (1, 2), while persistence of high anti-EBV antibody titer in NPC patients after radiotherapy was associated with high risk of recurrent or persistent disease in Alaska (2) and elsewhere (3, 4). Similar risk and prognostic factors are noted in other countries reporting a high incidence of NPC including China, Hong Kong, Taiwan, Malay, Singapore and Tunisia (5, 6). Statistically associated risk factors have been reported which include smoking, poor ventilation, use of herbal drugs, nasal oils and synergistic effects (7); while genetic risk factor has been implicated (8). Unusually high anti-EBV antibody titers have been reported from sera of lymphoepithelioma (Schmincke tumor) patients when compared to the sera from patients with squamous or undifferentiated carcinoma (9). Since the oncogenicity of EBV in NPC and other malignancies (10) is established, the routine use of anti-EBV antibody titers as a detection and post-therapy prognostic factor is indicated. Clinical signs are also important which include the disappearance of hypertrophic osteoarthropathy and finger clubbing which usually reverse after successful therapy of the tumor (11). Lymphoepithelioma is more frequently found under age thirty and has higher survival rates than older age groups (12, 13) and better local control rates (14, 15). Cell-mediated immunity studies reveal impaired T cell functions by Mantoux test of NPC patients and in

Providence Hospital Cancer Therapy Center, 3200 Providence Drive -Pouch 6604, Anchorage, Alaska 99502, (907) 337-1772

vitro PHA response assays (15, 16). Other important prognostic factors include stage (16), longer treatment periods (17) and failure to control the primary. Fletcher reported a recurrence rate of 36% which indicates a great need for improved methods of control of the primary lesion (18). In U.S. children NPC is the second most common nasopharyngeal malignancy representing 30% of the cases compared to an incidence of 85% of all nasopharyngeal malignancies in adults. In children, NPC is a devastating disease with high rates of distant metastases as well as some difficulty in controlling the primary tumor (19, 20).

Survival

The overall survival in Alaska is 48% at five years (1), and increased radiation doses have been associated with increased tumor control rate (21) and increased survival rate (22). The most encouraging survival rate reported is the five-year survival of 75% reported by Jenkin et al in patients less than age thirty with disease confined to the nasopharynx (13).

Treatment

In the U.S. the pattern of care consists of radiation therapy to the primary nasopharyngeal lesion with external beams to doses of 6000-6500 cGy in seven weeks for lympho-epithelioma and 6500-7500 cGy in seven to nine weeks for squamous cell carcinoma. Radiation therapy to the cervical and supraclavicular lymph node chains is recommended in all cases to doses in the range of 4500-5500 cGy in four and a half to six weeks in the clinically involved cases. Persistent disease in the neck is treated to doses in the range of 6000 cGy to the entire neck with local boost fields or interstitial implantation used to bring the dose to 6500-7000 cGy in seven to nine weeks. Boost fields are also recommended for delivering higher doses involving the base of the skull or cranial nerves since attentuation by thick bone at the base of the skull may reduce the dose, resulting in underdosage to viable tumor cells (23). Many centers in the U.S. continue to use external beam without radiation implantation. However, in several other centers radiation implantation of the nasopharynx has been successful when used either during the initial radiation therapy course or later to treat recurrences (24-29).

Complications from external beam include the severe side effects of pain, dysphagia, edema, mucositis, necrosis, skin reaction, difficult breathing, and laryngeal reaction. Late tissue reactions include soft tissue necrosis, edema, fistula, fibrosis, myelitis, and other neuropathy (30). Using beams in the 15-25 MeV photon range may also help to decrease the incidence of other severe late reactions which include fibrosis of the temporomandibular joint and masseter muscle, and xerostomia (31). Radiation implantation may help to decrease these complications and should also help to decrease the incidence of brain or spinal cord injury which may occur in the form of plaques of demyelination, petechial hemorrhages, and central necrosis in areas treated with external beams (32). Other complications that may be reduced by radiation implantation include bone necrosis of the mandible, secondary sarcomas in the maxilla (33), the development of malignancies within treatment portals (34), retinopathy (35), hearing loss, trismus, basilar skull necrosis (36) and endocrine abnormalities in children (37). In addition, radiation implantation may reduce injuries to the spinal cord as well. In a study employing external beam alone, the 5% and 10% incidence levels of cervical myelitis were found to be 1450 and 1750 ret, respectively. It was also found that an additional 5% increase in cervical myelitis resulted when doses were increased to yield a 15% gain in tumor ablation in that study (38).

Other significant studies which support the use and safety of radiation implantation of the nasopharynx deserve mention here since radium applicators for the nasopharynx have been widely used and well studied over many years to treat benign diseases. This was done to prevent deafness from serous otitis and Eustachian tube obstruction. Carcinogenicity studies show that radiation implantation for benign disease has not been associated with significant increased risk of developing cancer nor was there an increase in complications at 18-35 years (39, 40).

Bone destruction at the time of diagnosis is not necessarily a contraindication to radiation implantation since most patients in one series showed radiographic evidence of healing by recalcification within four to six months (41). Wang showed that of those patients with radiographic evidence of bone destruction or massive soft tissue disease, or both, 26% survived five or more years, and 17% of these without apparent carcinoma (24).

Methods

Based upon the rationale supporting implant therapy for NPC in the preceding discussion, an applicator was developed which would have the advantage of providing a homogeneous dose distribution while being simple, inexpensive, comfortable for the patient, and also providing the feature of differential unloading to boost small tumor deposits to even higher doses. An afterloading 192Ir applicator using Reston (42) foam is used which can be implanted with the patient awake using analgesics such as morphine and meperidine with topical anesthetic applied to the mucosa of the nostrils, nasopharynx, and oropharynx. Materials include a strip of Reston material, a roll of half-inch hypoallergenic paper tape, two number 14 catheters with 5 cc inflatable balloon, and six nylon guide tubes for 192Ir ribbons (fig. 1). Next, three of the nylon guide tubes are secured with tape to the tip of the catheters, and then each catheter is inserted through a nostril and the tip is grasped with a forceps and pulled forward out of the mouth exactly as is done for palate retraction in routine examination of the nasopharynx. At this point the tape is removed from the tip of the catheters. Next, a strip of Reston material is

cut to an appropriate size according to the size of the nasopharynx. In general, the Reston foam should be cut to twice the anterior-posterior length of the nasopharynx and 0.5 cm wider than the nasopharynx. Then the Reston foam is incised along its midplane in two points sufficiently large to allow insertion of the catheter tips as shown in the demonstration model seen in figures 2-7. The catheter tips are inserted in the two slits thus made being certain to insert them through the side with paper backing material still attached to the foam. Then the paper backing material is removed and the sticky side of the foam is now exposed. Next, the Reston foam is folded back over the catheter tips enclosing them symmetrically within the sticky, adherent side of the material as shown in figure 3. The catheter tips may be allowed to protrude slightly, but the 5 cc balloon bags should remain enclosed within the foam for inflation of the bags later. Tape is then used to surround the implant to provide an attachment surface for the guide tubes as in figure 4. The individual guide tubes are then held one by one as each is taped securely in place so as to surround the foam at one cm. intervals as seen in figures 5-7 of the demonstration model. At this point the catheters are then pulled back

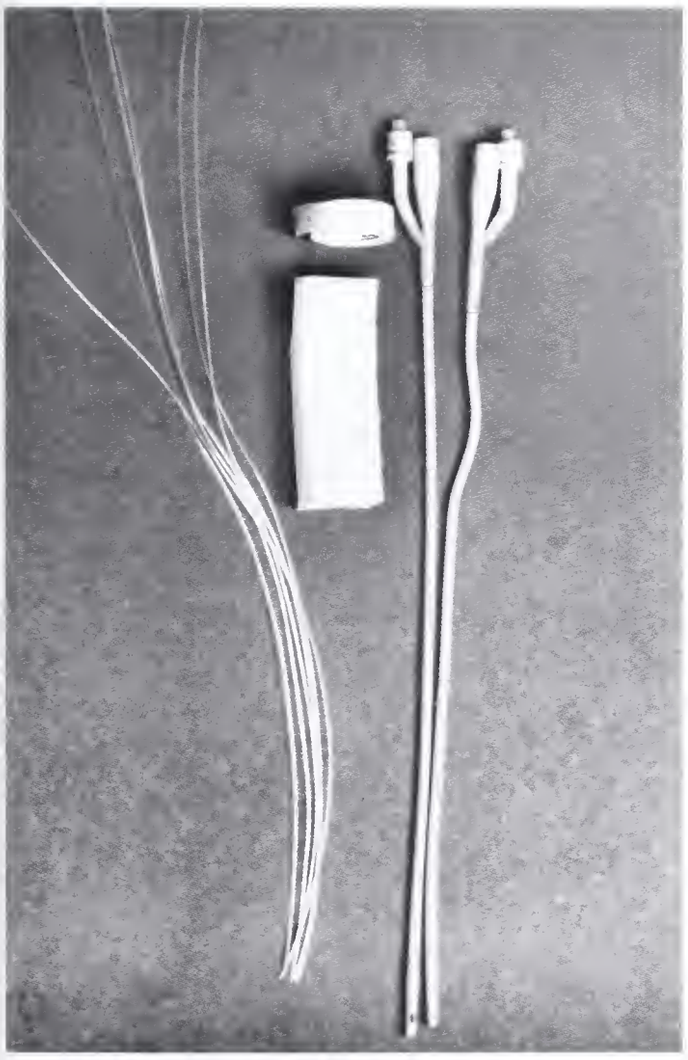

Figure 1. Materials include six nylon guide tubes, tape, Reston foam, and two number 14 Foley catheters with 5 cc inflatable balloons.

Figure 2. Catheter tips inserted into two slits from the adherent side of the Reston foam strip at the middle.

Figure 3. The Reston foam is folded back over the catheter tips enclosing them symmetrically.

out of the nostrils to the point where the foam implant fills the nasopharyngeal cavity, and 2-3 cc of sterile saline may be injected into the catheter bags just sufficient to hold the implant within the nasopharynx. The catheters are then sutured to the external nares to hold the implant securely at that position as in the case demonstration seen in figure 8. Simulator radiographs are then taken with dummy source ribbons which are used for accurate and precise location of the sources within the cavity as in figure 9. The isodose printout overlaid on the simulator film in figure 10 shows a homogeneous dose distribution obtainable with this method.

Discussion

Over the years a variety of nasopharyngeal implant applicators have been developed and used. The applicator reported here is relatively comfortable for the patient, simple to load and produces a homogeneous dose distribution. It has the added feature of optional differential unloading when certain areas need even higher doses but it might be too dangerous to boost the entire volume further. For example, the entire

Figure 4. Tape is used to surround the foam to provide an attachment surface for the guide tubes.

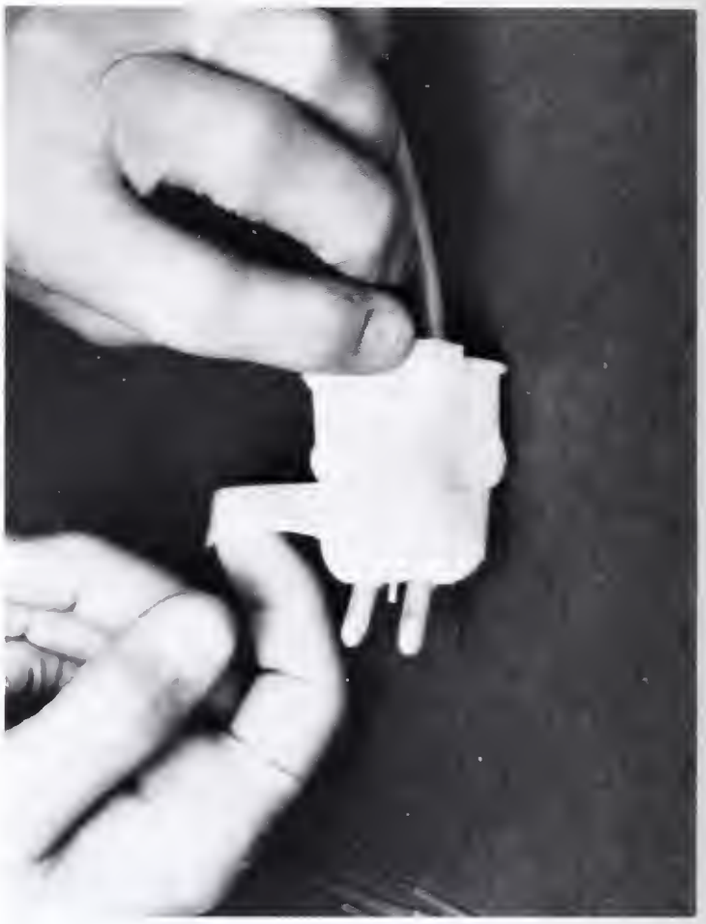

Figure 5. The first nylon guide tube is taped in place.

Figure 6. All six nylon guide tubes taped securely in place.

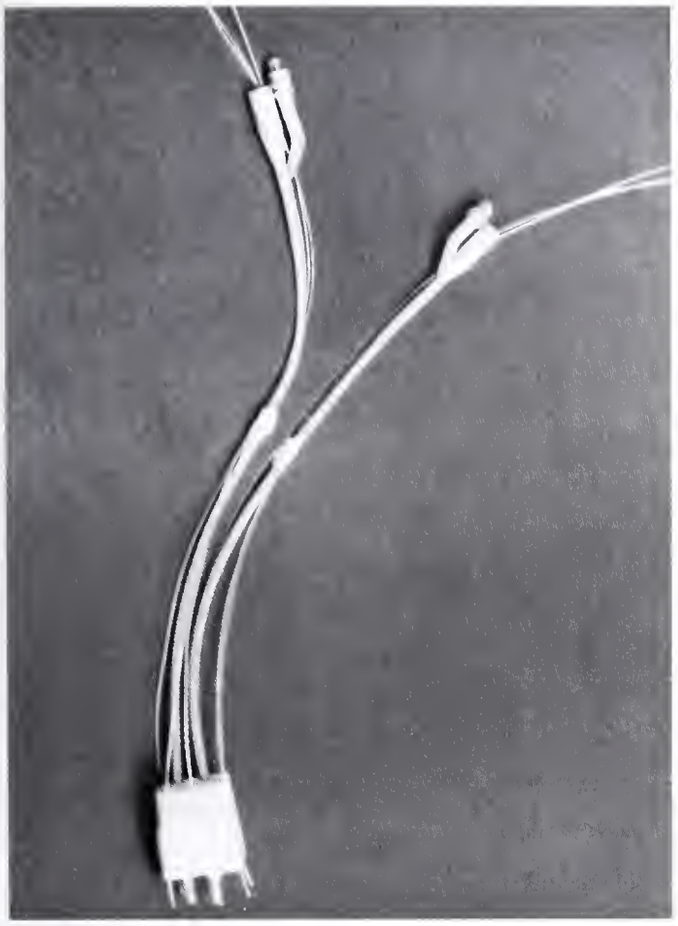

Figure 7. Completed demonstration model.

Figure 9. Simulator radiograph indicates precise location of the dummy sources for computerized isodose calculations.

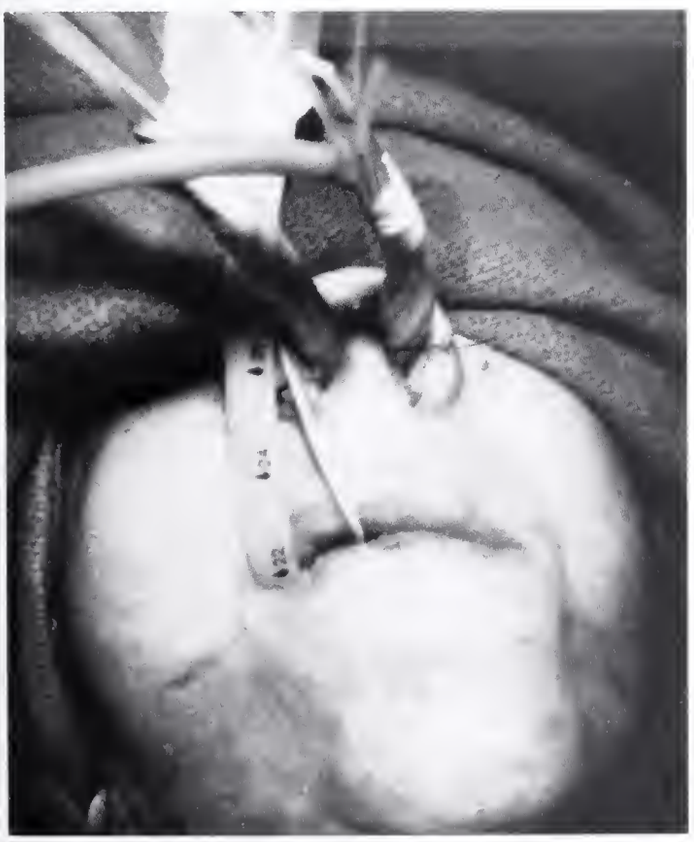

Figure 8. Nylon guide tubes are taped securely to the catheters and the catheters are sutured to the external nares.

Figure 10. Computerized isodose printout overlaid on the simulator film shows a homogeneous dose distribution.

volume may be given a boost dose of 1200-1500 rads and three of the 192Ir ribbons could then be removed in order to boost a residual area for another 500 rads. This implant is well-tolerated and its removal is simple by cutting off the catheters at the nares and pulling the implant out of the nasopharynx through the mouth with forceps. Pitfalls are avoided by being certain to have both the 192Ir ribbons and the guide tubes sealed permanently at their end located within the nasopharynx and by monitoring the patient and by accurate source counting by the radiation safety officer at the time the 192Ir ribbons are removed, prior to removal of the implant itself.

Conclusions

After radiation therapy is completed, anti-EBV antibody titers should be done at each periodic followup visit to watch for rising titers which may indicate recurrence. Those patients in whom the titers remain high are strongly suspect for tumor persistence and may require closer surveillance and retreatment. The use of 192Ir in an afterloading applicator has been demonstrated which is simple to insert under local anesthesia and has the safety advantages associated with afterloading applicators and the additional option of differential unloading while being able to provide a homogeneous dose distribution. Radiation implantation of the nasopharynx provides a method to give higher boost doses to the primary tumor while decreasing doses delivered to normal structures which have already been treated with external beams.

Acknowledgement

The author wishes to thank Dr. Peter D. Swift, Darwin Zellmer, and David Cloninger for their suggestions regarding this paper. The author also wishes to thank William Kellis for preparing the photographs, and Carol Buchheit and Sandi Williams for typing the manuscript.

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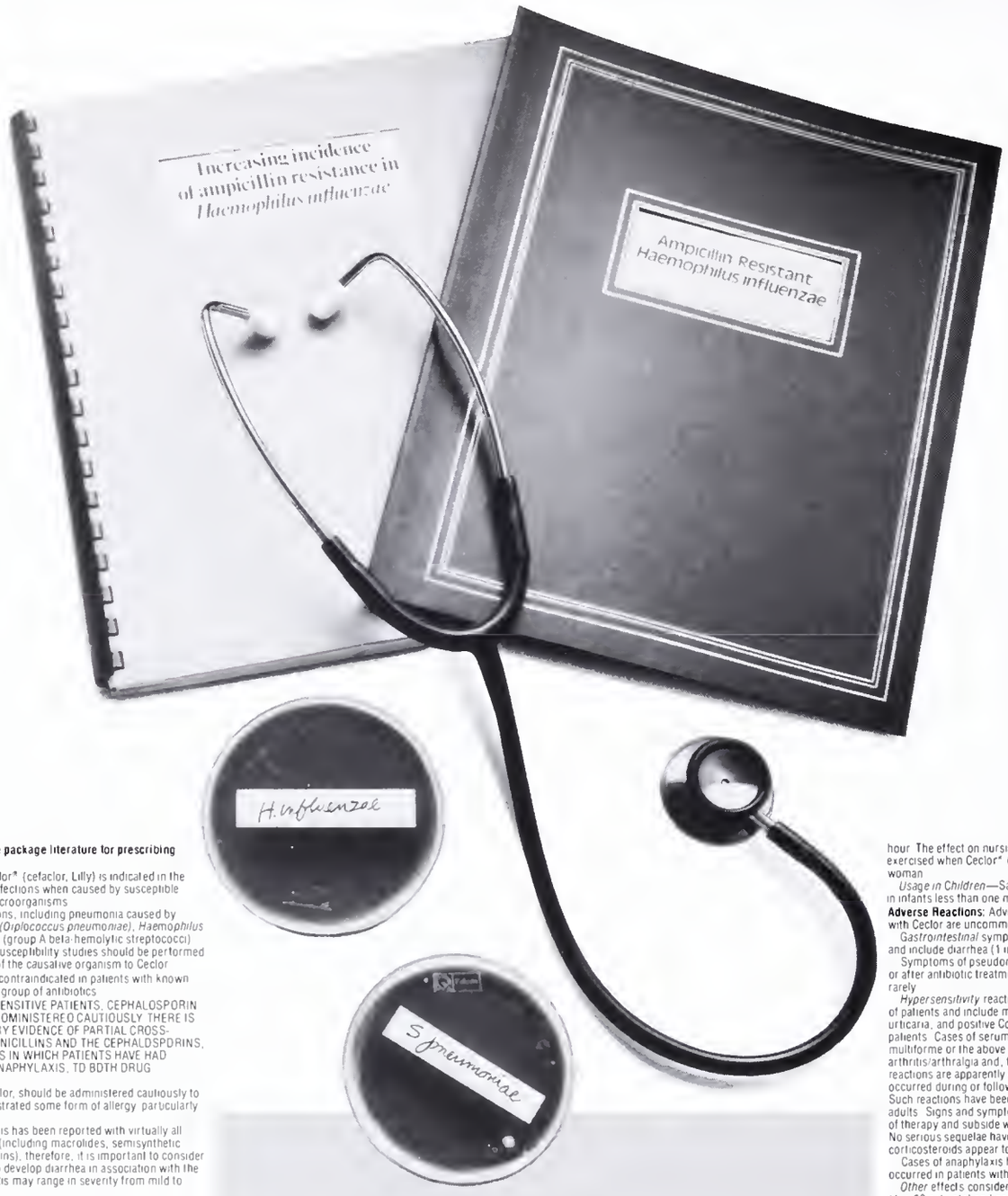
An added complication... in the treatment of bacterial bronchitis*



Some ampicillin-resistant strains of Haemophilus influenzae—a recognized complication of bacterial bronchitis*—are sensitive to treatment with Ceclor.[1-6]

In clinical trials, patients with bacterial bronchitis due to susceptible strains of Streptococcus pneumoniae, H. influenzae, S. pyogenes (group A beta-hemolytic streptococci), or multiple organisms achieved a satisfactory clinical response with Ceclor.[7]

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Brief Summary Consult the package literature for prescribing information.

Indications and Usage: Ceclor® (cefaclor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae (Diplococcus pneumoniae), Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Ceclor.

Contraindication: Ceclor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

Warnings: IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES.

Antibiotics, including Ceclor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics (including macrolides, semisynthetic penicillins, and cephalosporins), therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening.

Treatment with broad-spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis.

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, management should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation. When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C. difficile*. Other causes of colitis should be ruled out.

Precautions: *General Precautions*—If an allergic reaction to Ceclor occurs, the drug should be discontinued, and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids.

Prolonged use of Ceclor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug.

Ceclor should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Ceclor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinitest® tablets but not with Tes-Tape® (Glucose Enzymatic Test Strip; USP, Lilly).

Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

Usage in Pregnancy—Pregnancy Category B—Reproduction studies have been performed in mice and rats at doses up to 12 times the human dose and in ferrets given three times the maximum human dose and have revealed no evidence of impaired fertility or harm to the fetus due to Ceclor. There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

Nursing Mothers—Small amounts of Ceclor have been detected in mother's milk following administration of single 500-mg doses. Average levels were 0.18, 0.20, 0.21, and 0.16 mcg/ml at two, three four, and five hours respectively. Trace amounts were detected at one hour. The effect on nursing infants is not known. Caution should be exercised when Ceclor® (cefaclor, Lilly) is administered to a nursing woman.

Usage in Children—Safety and effectiveness of this product for use in infants less than one month of age have not been established.

Adverse Reactions: Adverse effects considered related to therapy with Ceclor are uncommon and are listed below.

Gastrointestinal symptoms occur in about 2.5 percent of patients and include diarrhea (1 in 70).

Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely.

Hypersensitivity reactions have been reported in about 1.5 percent of patients and include morbilliform eruptions (1 in 100). Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Ceclor. Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

Causal Relationship Uncertain—Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

Hepatic—Slight elevations of SGOT, SGPT, or alkaline phosphatase values (1 in 40).

Hematopoietic—Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

Renal—Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200).

[061782R]

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*Many authorities attribute acute infectious exacerbation of chronic bronchitis to either *S. pneumoniae* or *H. influenzae*.

Note: Ceclor is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

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ALASKA'S EMERGENCY MEDICAL SERVICES PROGRAM

Mark S. Johnson*
Matt Anderson**
John Hall, M.D.***

During the past few years, the Division of Public Health in the Alaska Department of Health and Social Services, has expanded its involvement in emergency medical services system development, and has taken on the responsibility of certifying Emergency Medical Technicians (EMT's), EMT Instructors, and Emergency Medical Services (i.e. ambulance services) in Alaska.

Enabling Legislation and Regulations

In 1977, the Alaska Legislature passed Alaska Statute 18.08.010 which designated the Department of Health and Social Services (DHSS) as having responsibility for Emergency Medical Services (EMS) systems development, established an eleven member Advisory Council on EMS appointed by the Governor, and gave the department authority to award EMS systems development grants. The following year, in 1978, the Legislature passed Alaska Statute 18.08.080, which gave DHSS the authority to adopt regulations for certification of basis and advanced level EMT's, EMT Instructors, and prehospital Emergency Medical Services (i.e. ambulance services).

Since passage of these two pieces of legislation, DHSS has developed grant application regulations for EMS systems development and has developed a computerized certification system for EMT's, EMT Instructors, and ambulance services. All facets of the DHSS EMS program have been developed with assistance and consultation from the Advisory Council on EMS, which currently includes two physicians, two nurses, a hospital administrator, a regional native health program director, a mobile intensive care paramedic and three EMT's (1). Currently, there is one vacancy on the council. In addition, an emergency medicine physician is retained on contract to the State EMS Office to provide ongoing medical input and consultation (2).

Grant Applications and Funding

Each year, Regional EMS Councils or native regional health entities submit grant applications to the State EMS Office for funding for the following fiscal year. These grant applications must address the major acute health status problems in the region and should outline specific objectives toward improving the region's EMS system. In fiscal year 1983, the EMS Section gave out grants to regions totaling $1,376,000 for operating expenses (including $2500 mini-grants to 59 volunteer ambulance services), plus $923,000 for EMS equipment. Additionally, the Alaska Area Native Health Service (AANHS) made available $1.3 million to Native Regional Health Corporations for EMS programs. Although the criteria for use of the AANHS funds have been more loosely defined than for use of state EMS grant funds, DHSS & AANHS try to coordinate funding sources as closely as possible.

When developing grant applications, the Regional EMS Grantees assess EMS problems and needs and solicit requests for funding, training or technical assistance from local communities, ambulance and rescue services, clinics, and hospitals.

Priority attention is given to the needs of the numerous volunteer services serving our smaller communities and rural areas. Each request for funding must be approved by at least one physician sponsor, then must be reviewed and approved by the Regional EMS Council and staff, and finally must undergo review and approval from the State EMS Office and the State

*Emergency Medical Services Coordinator
**Emergency Medical Services Training Coordinator
***State EMS Medical Director
Emergency Medical Services Section, Division of Public Health, Department of Health and Social Services, Pouch H-06C, Juneau, Alaska 99811.

Advisory Council on EMS. Whenever possible, local matching funds or inkind services are encouraged to ensure that local entities do not become too dependent on state funding.

Planning and Development

To assist local communities and regions in planning for EMS system improvements, the EMS Section of the Department of Health and Social Services has developed "Alaska EMS Goals: A Guide for Planning Alaska's Emergency Medical Services System." This planning guide uses the "levels of care" concept adapted from Alaska's State Health Plan which identifies four levels of communities in Alaska, including: Level I - Villages; Level II - Subregional Centers; Level III - Regional Centers; and Level IV - Urban Centers (Anchorage and Fairbanks) (3). Although Alaska does not currently have a Level V - Metropolis, the planning guide recognizes Seattle, Washington as the nearest Level V community. For each level community, the EMS Goals document outlines specific goals and objectives appropriate for that size community, including administration, evaluation, manpower and training, communications, patient transportation, equipment and facilities, critical care, public information and education; disaster planning; and mutual aid. Appropriately, these recommendations are much more basic for Level I Villages than for Level IV Urban Centers. In addition, the EMS Goals document includes recommendations for emergency medical services on highways, in schools, in high risk occupation sites, and in communities with 25 people or less. This planning guide provides a tool for communities to evaluate their local EMS services and thereby pinpoint areas needing attention; it also helps State and Regional EMS programs to best utilize staff time and funding resources.

State and Regional EMS Programs

Each Regional EMS Program employs a full-time staff of administrators, clerical support, and EMS instructors. Currently, there are five EMS regions funded by the state, including the North Slope, NANA (Kotzebue), Interior, Southern and Southeast Regions. For fiscal year 1984, the Norton Sound Region has applied for a grant as a separate region. The three largest Regional EMS Councils based in Fairbanks, Anchorage, and Sitka (4), also employ clinical coordinators to assist in developing and sponsoring continuing education programs for nurses, mid-level practitioners, and physicians. The activities supported by Regional EMS Councils include CPR and first aid training, Emergency Trauma Training (ETT), basic and advanced Emergency Medical Technician (EMT) training, EMT Instructor workshops, ambulance service development workshops, medevac workshops, Advanced Cardiac Life Support, sponsored by the American Heart Association, Advanced Trauma Life Support, sponsored by the American College of Surgeons, and a variety of other seminars on specialized medical topics.

Additionally, each year in November, the State EMS Office and the Regional EMS Councils cosponsor an EMS symposium in Anchorage. In 1982, this symposium was attended by over 500 EMS responders from throughout the state.

History of Prehospital EMS Training and Certification in Alaska

Organized training of prehospital emergency care providers in Alaska has been in progress for more than a decade. Pioneering efforts in this training were initiated by the Alaska Department of Public Safety in 1970, with the first Emergency Medical Technician (EMT) training course at the Public Safety Academy in Sitka.

In 1973, the Emergency Trauma Technician, or ETT course, was developed by the Department of Public Safety to provide an appropriate level of training for individuals working or living in environments where risk of accidents is great, such a logging camps or fishing boats. This course, once predominant only in Southeastern Alaska, has undergone significant refinement during the past few years and is currently a valuable course for teaching basic emergency care to first responders throughout the state. The outline of each certified class now is reviewed by Southeast Region EMS Council, Inc. in Sitka to ensure compliance with approved instructional goals. In an attempt to ensure maximum coverage of prehospital EMS responders throughout the state, different strategies were developed by the Department of Public Safety and Regional EMS Councils.

One method, used by the Department of Public Safety from 1970 until 1981, was to bring ambulance service personnel to the Public Safety Academy in Sitka for training, with funds provided to individuals to fly from their home communities for either EMT-Basic or EMT-Instructor training. As time passed, increasingly more certified EMT instructors, trained in this manner, were based in communities throughout Alaska.

During the period, the Department of Public Safety trained and certified approximately 2500 basic EMT's and 120 EMT instructors.

In the mid-1970's, the newly formed Regional EMS Councils began hiring full-time, itinerant instructors, who could provide on-site training in remote communities which did not have locally based instructors. There were several advantages to this method of training. These full-time instructors became more experienced in putting on classes, and EMS responders could be trained in the use of their own equipment, learning to function as teams with other members of their ambulance or rescue service. EMT's also were taught the necessity of preplanning emergency care, the need for mutual aid agreements, and identification of local medical resources.

Although more and more communities have their own EMT instructors residing locally, itinerant instructors continue to teach a major portion of EMT courses in Alaska.

Development of EMT Certification

On December 31, 1981 the new Department of Health and Social Services EMT and EMT Instructor certification regulations went into effect. These regulations, administered by the State EMS Section, were developed by a Manpower and Training Task Force, appointed by the State Advisory Council on EMS, and chaired by Tim Samuelson, M.D., of Anchorage. These regulations provide for three levels of certified EMT's, including EMT-I (basic), EMT-II (Intermediate), and EMT-III (Intermediate plus some advanced cardiac skills) (5).

Under the Alaska Medical Practice Act (6), Mobile Intensive Care Paramedics (MICP's), the most advanced level of prehospital EMS responders, are licensed by the State Medical Board. Therefore, the Emergency Medical Services Section of the Department of Health and Social Services has developed a Memorandum of Agreement with the State Medical Board. Under this agreement, the State Medical Board reviews and approves EMT and EMT Instructor certification regulations developed by DHSS, and the EMS Office assists in determining eligibility of applicants for licensure as MICP's.

The EMT regulations were developed in order to standardize training, certification, and recertification for Emergency Medical Technicians throughout the state. Until 1981 there were two recognized certifications at the Emergency Medical Technician-I level. The first was a certification from the Department of Public Safety, the second, a current certification from the National Registry of Emergency Medical Technicians. The latter was the method of certification used by some of the regional EMS Councils. During the six months immediately following the implementation of the new DHSS regulations, persons with either type of certification could apply to the Department of Health and Social Services for state certification under a grandfathering clause. All individuals requesting EMT-II or EMT-III certification had to demonstrate a need for this level of certification as well as provide a letter from their sponsoring physician endorsing the EMT's skills, and accepting sponsorship. EMT-III applicants also had to pass a state certification examination before becoming certified.

EMT Regulations

The Emergency Medical Technician-I (or EMT-Basic) course dates back to the late 1960's, when the Department of Transportation established and standardized the training for ambulance personnel in the United States. It is at least 81 hours in length and teaches the basics of prehospital emergency care, including CPR, hemorrhage control, splinting, bandaging, basic pathophysiology and treatment of shock (including Military Anti-Shock Trousers - MAST pants -in recent years) and medical emergencies, as well as specialized extrication and patient removal techniques for victims who are trapped in automobiles or light aircraft. The course outline, student study guide, and instructor's lesson plans are currently undergoing revision by the U.S. Department of Transportation and it is anticipated that the Basic EMT-I course will soon be lengthened to 100 hours.

As emergency medical services became more sophisticated, trauma and cardiac arrest were identified as the areas in which advanced training, the EMT-II and EMT-III levels, should concentrate. The EMT-II and EMT-III programs rely on the concept that much of emergency care is based on the use of treatment protocols implemented in the prehospital environment by physician's standing orders. The 50 hour EMT-II course teaches the use of esophageal intubation devices; application of rotating tourniquets; performing peripheral venipunctures; and the use of 5% dextrose in water, crystalloid volume replacement solutions, sodium bicarbonate, 50% glucose, and naloxone hydrochloride (NARCAN).

In some areas, more emphasis is being placed now on advanced management of the emergent cardiac patient. EMT's-III are allowed, under physician authorization, to use EMT-II skills, plus apply electrodes and monitor cardiac activity; countershock life threatening arrhythmias (v-tach, v-fib, and asystole); use lidocaine; use morphine in severe pain secondary to extremity trauma; and use epinephrine 1:1000 for anaphylaxis.

The EMT-II and EMT-III courses rely heavily on the support of physician medical sponsors who participate in the writing of treatment protocols, in the instruction of the material, and in the subsequent direct and indirect supervision of the Emergency Medical Technicians' performance in the field. Under the State EMT Certification regulations, all EMT's-II and EMT's-III must have a physician sponsor who either directly (by voice contact) or indirectly (by standing orders) authorizes advanced life support medical procedures.

EMS physician sponsors also should provide ongoing supervision of the medical care provided by EMT's and ambulance services, approve and periodically review standing orders consistent with treatment protocols and the level of EMT training, ensure that an approved EMS report form is completed for each patient, review these report forms to make sure appropriate treatment was provided, and, wherever possible, make quarterly on-site supervisory visits of all prehospital emergency medical services.

EMT's at all levels must take and pass an approved training course and must be recertified every two years. Recertification requires 48 hours of continuing medical education, current CPR certification, and passing written and practical examinations for recertification.

These EMT regulations further state that "nothing is intended to prohibit a physician from authorizing a drug or procedure in an emergency situation which is not specifically covered by the certification of EMT's-I, II, or III."

Paramedic Regulations

Under regulations developed by the State Medical Board (12 AAC 40.300 - 12 AAC 40.390) mobile

intensive care paramedics may perform cardiopulmonary resuscitation and defibrillation, initiate and maintain intravenous routes using intravenous techniques and solutions approved by the medical sponsor, perform pulmonary ventilation by approved methods; perform gastric suction by intubation; obtain blood for laboratory analysis, apply rotating tourniquets; administer parenterally, orally, or topically any approved agents or solutions, and perform other emergency procedures authorized by a physician. The average number of hours of training for mobile intensive care paramedics is approximately 800 and is followed by a 6 month internship.

Emergency Medical Services Certification

In early 1983, Emergency Medical Service (i.e. ambulance service) certification regulations were approved (7). These regulations provide for certification of Basic Life Support (BLS) and Advanced Life Support (ALS) prehospital Emergency Medical Services.

BLS service certification is voluntary, and services which choose to be certified must meet the following criteria:

1) list available EMT's-I, and ensure that at least one EMT-I plus one other person to act as driver when using a surface transportation vehicle, will be able to respond to emergency calls 24 hours day:
2) have a sponsoring physician;
3) have direct communications capability with a physician, hospital, or mid-level practitioner, unless the Department (Health and Social Services) grants a waiver due to technical communications problems;
4) have appropriate equipment to perform basic life support medical procedures; and
5) have a program of continuing education which will enable certified EMS personnel to meet recertification requirements.

All ALS service **must** be certified, by meeting the above requirements, plus:

1) list available EMT's-II, EMT's-III, mobile intensive care paramedics, or other personnel such as R.N.'s or M.D.'s who may respond to medical emergencies on a regular basis;
2) Ensure that an EMT-II, EMT-III, mobile intensive care paramedic, or other advanced life support medical personnel, plus at least one other person trained to at least the basic EMT-I level to act as driver when using a surface transportation vehicle, will be available to respond to emergency calls 24 hours a day; and
3) have appropriate equipment to perform basic and advanced life support medical procedures within the skill levels of available certified personnel.

Additionally, all certified emergency medical services must use an approved EMS report form which documents vital signs and medical treatment of each patient, send a copy with the patient to the appropriate treatment facility, and keep at least one other copy as a permanent record.

These regulations specifically do not prohibit non-certified persons from responding to a medical emergency when no certified personnel or services are available, or when there are too many victims for available certified personnel to handle, such as in a mass casualty situation.

Certified personnel of an EMS service also are authorized to accompany patients on medivacs, when this is the most suitable means of transporting the patient.

Medical Control

As prehospital emergency medical services become more sophisticated, the concept of "medical control" becomes increasingly more important. According to a position paper adopted by the American College of Emergency Physicians in April, 1982:

> "All aspects of the organization and provision of emergency medical services require the active involvement and participation of physicians. These aspects should incorporate design of the EMS system prior to its implementation; continued revision of the system; and operation of the system from initial access, to prehospital contact with the patient, through stabilization in the emergency department. All prehospital medical care may be considered to have been provided by one or more agents of the physician who controls the prehospital system, for this physician has assumed responsibilities for such care."
>
> "Physician control of prehospital emergency care may be accomplished through direct voice communications with prehospital emergency medical personnel (direct control) or through provision of care in accordance with patient care protocols developed and promulgated by physicians (indirect control). All training of emergency prehospital personel, including course design, supervision of training, retraining, continuing education, ongoing performance evaluation through audit, review and critique sessions, and other appropriate components, must be made under the direction of a physician."
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> "To optimize medical control of all prehospital emergency medical services, these services should be managed by physicians who meet the following requirements:
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> 1) Familiarity with the design and operation of prehospital EMS systems;
> 2) Experience in prehospital emergency care of the acutely ill or injured patient;
> 3) Routine participation in base-station radio control of prehospital emergency units;
> 4) Experience in emergency department management of the acutely ill or injured patient;
> 5) Routine active participation in emergency department management of the acutely ill or injured patient;
> 6) Active involvement in the training of basic and advanced life support prehospital personnel;

7) Active involvement in the medical audit, review, and critique of basic life support and advanced life support prehospital personnel; and
8) Participation in the administrative and legislative process affecting the regional and/or state prehospital EMS system (8)."

Clearly, in Alaska, medical control is complicated by the fact that many remote communities do not have physicians residing locally. This underscores the need to have expanded, reliable communications between remote communities or highways, and physician staffed clinics and hospitals.

We are fortunate in Alaska to have many dedicated physicians who are willing to provide medical control and direction to prehospital EMS personnel who may, in many instances, live hundreds of miles away. By providing medical direction to dedicated EMS responders, most of whom are volunteers, these physicians are making a very valuable contribution toward developing a high quality EMS system.

Future of EMS in Alaska

In little more than a decade, prehospital emergency medical services have been vastly improved in most communities in Alaska. With continued commitment and support from the state, local towns and villages, and the medical community, we should be able to bring every community in Alaska up to the appropriate EMS standards recommended for its size and location. Hopefully, this will result in a continuing decrease in death and disability rates resulting from accidents and acute illnesses.

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ECTOPIC PREGNANCY: A RETROSPECTIVE STUDY AT THE ALASKA NATIVE MEDICAL CENTER

Jim Burgess, M.D.

Introduction

At the Alaska Native Medical Center (ANMC) in Anchorage, physicians for some time have felt that a large number of ectopic pregnancies were being seen, but no study had been made to determine the incidence. This paper contains the results of a retrospective study made to determine the proportion of ectopic pregnancy to normal delivery at ANMC and a comparison with ectopic pregnancy ratios in other hospitals in the U.S.

The study also looked at certain factors which predispose women to ectopic pregnancies, including

Pelvic Inflammatory Disease
Current use of an IUD
Recent Discontinuation of IUD use, and
History of a previous ectopic pregnancy.

Materials and Methods

RATIO

The 18 month period between April 1, 1980 and September 30, 1981 was chosen for this retrospective study. The surgical log book at the Alaska Native Medical Center was reviewed for every patient who had a post operative diagnosis of ectopic pregnancy during the 18 month period. Since ANMC performs surgery for ectopic pregnancy on native patients from all Alaska, each patient's chart was examined to determine if the patient was from the Anchorage service unit area or from outside the area.

The delivery room record was also examined for the 18 month period to determine the total number of births at ANMC. The number of these births that occurred among women living in the Anchorage service unit area was also determined from the delivery room record. The number of ectopic pregnancies was compared with the number of births occurring among white women living in the Anchorage service area to determine the proportion of ectopic pregnancy.

For this study, a patient was counted as having had pelvic inflammatory disease if the patient's chart indicated there was evidence of old PID present at the time of operation for ectopic pregnancy. If the patient's chart and the surgeon's report were both negative for PID but the chart did not contain the patient's record from childhood to the time of the ectopic pregnancy then the patient was excluded from the portion of the study dealing with PID.

All other information was obtained from the patient's medical records at ANMC.

A woman who stopped using an IUD in the recent past is defined as one whose IUD was removed within six months prior to her ectopic pregnancy.

Results

RATIO

During the 18 month period from April 1, 1980 to September 30, 1981, 48 cases of ectopic pregnancy were treated surgically at Alaska Native Medical Center. Of these, 22 cases occurred in women from Anchorage service unit area and 26 occurred in women who lived in other parts of Alaska.

During the same 18 month period 1,008 births occurred at ANMC. Of these, 709 of the mothers lived in the Anchorage Service Unit. During the 18 month period, among women who lived in the Anchorage Service unit there were 22 ectopic pregnancies and 709 births for a ratio of 32.2 hospital births per ectopic pregnancy.

PREDISPOSING FACTORS

1. **Pelvic Inflammatory Disease:** Of the 48 women in this study who had an ectopic pregnancy, 17 were excluded since their medical records were not complete. Of the remaining 31, 19 had evidence of PID

RISK MA

Doctrine of Informed Consent

By Lee S. Glass, M.D., J.D.

As doctors, most of us can accept the notion that if our negligence causes harm to a patient, we may ultimately be required to pay damages to that patient. Similarly, most of us would expect to be held liable in some way if we breach a contract with one of our patients. What is more difficult for some of us to understand is that even if we fulfill our contractual obligations to our patient, and even if we do so by delivering medical care of impeccable quality, we may still be required to pay enormous sums to the patient if we have not first obtained our patient's informed consent.

The doctrine of "informed consent" is a pitfall for the unwary physician. To the doctor attempting to follow a winding path through the legal quagmire of medical malpractice law, the doctrine of informed consent can be quicksand beneath the physician's feet.

One physician's misstep is poignantly illustrated by the following case: A nine year old boy was brought by his mother to a pediatrician. The mother stated that when the child was two years of age, he had been physically abused and had suffered a basalar skull fracture. Convulsions which developed shortly thereafter were controlled with Dilantin. The child was maintained on Dilantin for a two year period, after which that drug was discontinued; no further anti-convulsant therapy was required. Two days prior to her visit with the pediatrician, the mother noticed behavior which that physician diagnosed as a probable convulsion. He felt that anticonvulsant therapy should be re-initiated, and gave the mother a prescription for Dilantin. Two days after the first dose of Dilantin, a macular rash developed. The pediatrician immediately discontinued the Dilantin. The following day, Stevens-Johnson syndrome was diagnosed. The child exfoliated 93% of his epidermis, and despite extensive xenografting and burn-unit treatment, the child became secondarily infected, developed DIC, and died.

The pediatrician was trapped by the web of informed consent. He was not negligent: he took a good history, performed an extensive physical examination, reasoned his way to what was undoubtedly a correct diagnosis, and chose a commonly prescribed and effective medication. His error was that he did not obtain the mother's informed consent to his proposed treatment regimen. That mistake may now cost him dearly.

"Informed consent" is a legal doctrine which arose from a solid principal of British and American common law: adults have almost an absolute right to control what is done to their bodies and to the bodies of their minor children. Medical care, in most instances, can be delivered only after the consent of the adult is obtained. That consent must be "informed": consent based upon incomplete or incorrect information is the same as no consent at all. Thus, in every case, the physician must be careful to provide the patient with all of the information the patient needs to properly consent; failure to do so will expose the physician to perilous consequences.

There are five elements which a physician must explain in order to obtain the patient's informed consent. The first of those elements is the physician's diagnosis. The remaining four elements may be easily remembered by the mnemonic "TRAP" (because a "trap" is what the physician will be in if he neglects to obtain informed consent!) The mnemonic stands for: Treatment, Risks, Alternatives and Probable success or failure.

The diagnosis should be given in both its correct medical terminology, and, if necessary, in simpler terms which the patient can understand. Many times it will be helpful to draw a picture for the patient. If a picture is drawn, it should be dated, initialed, and put in the patient's chart.

Every proposed treatment carries a certain degree of risk. All significant risks should be discussed in detail. This is true even if the occurrence of such a serious risk is rare. The case outlined above is a good example of this principal: Stevens-Johnson syndrome is a rare occurrence with Dilantin therapy, but the risk of death or serious harm is quite high in patients with that syndrome. Therefore, the risk should be discussed. The syndrome itself probably need not be named or even described, but the types of harm to which the Stevens-Johnson patient is exposed should be mentioned so that the patient (or, in this case, the patient's parent), will understand the magnitude of the possible danger.

Five Elements of Informed Consent

Alternatives should be thoroughly explained to the patient. In any case in which treatment is recommended, there are always at least two alternatives: no treatment, or some treatment. The "no treatment" option should usually be the first option presented to the patient. Patients will often reject this option, either immediately or after hearing the other options presented, but it should always be shown to the patient to be one possible choice. (If that option carries its own risks, those risks should be presented to the patient at that time. In one California case, a gynecologist did not inform his patient that failure to obtain a regular Pap smear could result in undetected cervical cancer. He was found liable for damages after his patient died of that malignancy.) As each alternative is presented to the patient, its risks and benefits should be described with whatever detail is necessary to allow the patient to understand each of the options available.

AGEMENT

The probable success or failure of a proposed course of treatment is the final element a patient needs in order to be able to independently evaluate the proposed course of treatment. This can often be a very important consideration for the patient. As doctors, we often think of pathology and remedies, without sufficient attention to the expense, discomfort and disruption of life which a treatment regimen might entail. If the patient goes through multiple hardships only to find no change or a worsening in his or her condition and then discovers that the probable success of the treatment regimen was only, say 30%, the patient is likely to become quite angry. The anger may lead to a visit to an attorney, and ultimately to a judgment against the physician.

With these principals in mind, a review of the case example will illustrate how a physician may quickly and efficiently obtain the informed consent of his patient. The physician would begin by explaining, in lay terms, his diagnosis of "probable seizure disorder." He would briefly discuss the nature and severity of the problem, and would mention any risk of harm to the child which he believed was posed by the disorder. He would present his suggestion that the child be treated with Dilantin. He would explain that Dilantin is an anticonvulsant drug, commonly prescribed, but that — like all other medications — it may produce adverse side effects. Some of its side effects are unpleasant, but could reasonably be expected to resolve after discontinuation of the drug. He would go on to relate that some people have allergic reactions to medications, and that it is often impossible to predict in advance who those people will be, or how severe the reaction will be. An allergic reaction to a medication, the doctor would continue, can cause problems ranging from a rash to — in very rare cases — death. The doctor would next list the available treatment alternatives. The first alternative would be to do nothing. He might discuss a delay in the institution of treatment, giving any risks attendant to such a delay. Another alternative offered might be to treat the disorder with phenobarbitol, followed at that point by an explanation of the risks associated with phenobarbitol therapy. Finally, the doctor would give his assessment of the probable success of the therapeutic regimen, which, presumably, would be quite high in this case. Most courts would consider consent to the treatment regimen given by the parent at that point to be "informed."

PHOTO BY CHRIS GIBBS

In many cases it will be advisable to memorialize the informed consent by a written document. The written document by itself has only a limited value to the physician. If a patient testifies, "I really didn't understand," the question of informed consent will be presented to a jury. The jury may ultimately decide against the patient, but no physician wants a case to proceed that far.

Perhaps the greatest value of "informed consent" is the time that the physician spends with the patient in obtaining that consent. That time, and the manner in which the informed consent is obtained, may be sufficient to convince the patient that he or she is being treated by a physician who truly cares about the patient's welfare. In that way, obtaining informed consent can add considerably to the developing bond between doctor and patient. It is that bond, not a piece of paper, which will provide the ultimate protection to the physician.

Judges and juries will, in informed consent cases, ask one ultimate question: "Did the physician provide the patient with all the information which a reasonable person in the patient's position would need in order to effectively participate in an important decision concerning a patient's life?" We should ponder that same question whenever we propose a treatment regimen to a patient.

Lee S. Glass, M.D., J.D. — has addressed numerous groups on risk management. Most recently, he addressed the International College of Surgeons and the Department of Orthopedics, University of Washington School of Medicine. Glass practices law with Faulkner, Banfield, Doogan & Holmes in Anchorage and Seattle. He is also a Resident in Anesthesiology at the University of Washington.

(61.3%), and 12 had no evidence of PID.

2. **Use of IUD at the time of the ectopic pregnancy:** Three of the forty-eight women (6.2%) in this study had their ectopic pregnancy while using an IUD.

3. **Women who stopped using the IUD in the recent past:** Two of the forty eight (4.2%) women in this study had their ectopic pregnancy within six months after their IUD was removed.

4. **Previous ectopic pregnancy:** Three of the women in this study (6.2%) who had an ectopic pregnancy during the 18 month period had had a previous ectopic pregnancy. One of the three women had two previous ectopic pregnancies; she had surgery to repair the damage from her first ectopic pregnancy.

SIDE

Of the 48 women in this study, 27 (56.2%) had their tubal pregnancy on the right side and 21 on the left.

RATIO OF ECTOPIC PREGNANCIES TO DELIVERIES

The ratio of one ectopic pregnancy per 32.2 births seen in the Anchorage Service Unit population is high compared with the studies noted in Table 1:

TABLE 1

SUMMARY OF RECENT STUDIES ON ECTOPIC PREGNANCY

Institution	Authors		Ratio of Ectopic Pregnancies to Deliveries
Freedmans Hospital	Clark & Jones (2)	1975	1: 84
New Jersey	Breen (3)		1: 87
Grady Mem. Hospital	Franklin (4)	1973	1:118
Wilford Hall Hospital	Gilstrap (5)	1976	1:124
U. of Virginia Hospital	Kitchin (6)	1979	1:126
U. of Oklahoma Hospital	Kallenberger (7)	1978	1:160
U. of Kentucky Med. Ctr.	Harralson (8)	1973	1:230

For the year 1977, Ory (9) reported there were 3.3 million births and 41,000 ectopic pregnancies in the United States for an average of one ectopic per 80.5 births.

The ratio of one ectopic pregnancy per 32.2 births might be criticized in that any factor that would decrease non-ectopic pregnancies in the study population would cause an increase in the observed ratio (actually a decrease in X with ratio expressed as 1:X). There are no statistics on what percentage of pregnancies among the Alaska Natives living in the Anchorage Service Unit are delivered at ANMC. There are no statistics on what percentage of ectopic pregnancies among Alaska Natives are treated at ANMC. Even though there are no hard statistics it is assumed for this study that almost all of the normal pregnancies and ectopic pregnancies are handled at ANMC where the patient receives health care at no direct cost.

PREDISPOSING FACTORS

1. **Pelvic Inflammatory Disease:** Nineteen out of thirty-one, or almost two-thirds of the women in this study had PID before their ectopic pregnancy. This appears to be a high percentage but a large group of women were excluded (17 out of the 48 or 35%) who had no evidence of PID but had incomplete medical records at ANMC.

2. **Women who were using an IUD when their ectopic pregnancy occurred:** There were three women who were using an IUD at the time of their ectopic pregnancy. In a recent study Ory (9) stated "Among current users of contraception IUD users have three times the risk of ectopic pregnancy as users of oral contraceptives and about the same risk as users of traditional contraceptives." These three women represent 6.2% of the women who had ectopic pregnancy during the 18 month period, but to generate a meaningful statistic this would have to be compared with the total number of native women using an IUD in Alaska. These three women thus provide only anecdotal information about the use of the IUD and ectopic pregnancy.

3. **Women who stopped using the IUD in the six months prior to their ectopic pregnancy:** During the 18 month period of the study two women had ectopic pregnancies who had recently had their IUD's removed: This represents 4.2% of the total ectopic pregnancies. Ory (9) in the same study cited above concluded that "an IUD user is at greatest risk of ectopic pregnancy immediately after the IUD is removed". He theorized that this is because "after an IUD is removed a foreign body reaction remains at a level sufficient to alter tubal function but not protect against pregnancy". The fact that two women did have an ectopic pregnancy soon after their IUD was removed is interesting, but because of the small number and lack of controls, it provides only anecdotal information to support Ory's conclusion.

Conclusion

The ratio of ectopic pregnancy for the 18 month period among native women who live in the Anchorage Service Unit was one ectopic pregnancy per 32.2 biths. This is two and one-half times higher than the national average for 1977 of one ectopic pregnancy per 80.5 births as reported by Ory (9).

The fact that 19 out of 31 woman who had ectopic pregnancies first had PID points to PID as probably being a causative factor in the high ratio of ectopic pregnancies seen at ANMC. No studies could be found that deal with the incidence of PID among the Alaska Native population.

The number one cause of pelvic inflammatory disease is gonorrhea (10). The state of Alaska had the highest per capital gonorrhea rate in the U.S. in 1980 with a rate of 1,010.5 per 100,000 population as compared with 443.3 per 100,000 population for the lower 49. Given this high rate of gonorrhea in Alaska's population as a whole, it would be edifying to compare the ratio of ectopic pregnancies seen in non-native Alaskans with that of Native Alaskans. Unfortunately, no statistics could be found dealing with ectopic pregnancies in non-native Alaskans. It is hoped that

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In vitro studies demonstrate

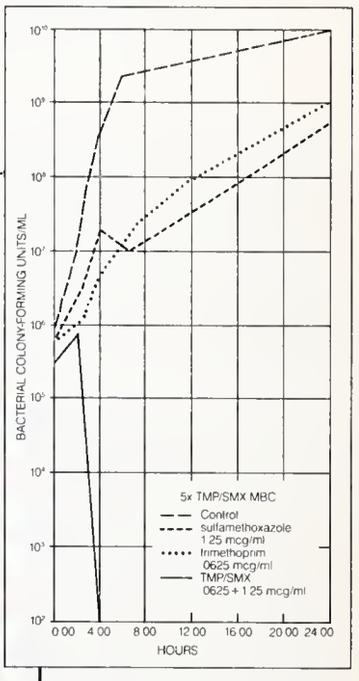
Bactericidal activity with minimal resistance

Percent of isolates of common uropathogens sensitive to BACTRIM and to other antimicrobials

	Escherichia coli	*Klebsiella pneumoniae*	*Proteus mirabilis*	*Proteus vulgaris*	*Proteus sp.*	*Enterobacter sp.*	*Enterobacter aerogenes*	*Enterobacter cloacae*
BACTRIM	**96%** 328,598	**89%** 63,551	**93%** 62,691	**84%** 4174	**91%** 4381	**88%** 1736	**96%** 7326	**92%** 11,856
ampicillin	72% 345,209	5% 65,466	85% 67,338	16% 4381	70% 4402	10% 1775	9% 7759	11% 12,091
cephalexin†	81% 343,339	85% 67,031	92% 67,027	16% 4398	80% 4365	22% 1834	13% 7571	12% 11,846
nitrofur-antoin	97% 307,785	65% 61,162	7% 59,775	13% 3848	14% 3059	67% 1707	60% 7109	67% 10,830

†Analogous to cephalothin, the primary antibiotic disc used in testing.
Source: The Bacteriologic Report, BAC-DATA Medical Information Systems, Inc., Winter Series, 1981-82.
Numbers under percentages refer to the projected number of isolates tested.

RAPID *IN VITRO* DESTRUCTION OF *E. COLI**



Kill curve kinetics of Bactrim and its individual components against *E. coli in vitro*.[1]

The bactericidal action of Bactrim has been demonstrated *in vitro* on laboratory strains of *E. coli*[1,2] and on clinical isolates of *E. coli, Klebsiella-Enterobacter, Proteus mirabilis* and *Morganella morganii*[3]—the most common causative organisms of urinary tract infections.[4] More than 100 published studies attest to the efficacy of Bactrim in recurrent urinary tract infections due to these organisms.[5] In comparative studies with other antimicrobials, Bactrim has consistently demonstrated unsurpassed efficacy during therapy.[6-11]

Resistance to Bactrim develops more slowly than to either of its components alone *in vitro*.* Among urinary tract isolates, resistance has rarely emerged in susceptible strains.[5,12] Bactrim is contraindicated in pregnancy at term, during lactation, in infants less than two months old and in documented megaloblastic anemia due to folate deficiency.

Initial episodes of uncomplicated urinary infections should be treated with a single-agent antimicrobial.

Bactrim™ DS

(trimethoprim and sulfamethoxazole/Roche)

b.i.d. *for recurrent urinary tract infections*

**In vitro* data do not necessarily predict clinical results.

See next page for references and a summary of product information.

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Bactrim™ DS

(trimethoprim and sulfamethoxazole/Roche)

Before prescribing, please consult complete product information, a summary of which follows:

Indications and Usage: For the treatment of urinary tract infections due to susceptible strains of the following organisms: *Escherichia coli, Klebsiella-Enterobacter, Proteus mirabilis, Proteus vulgaris, Proteus morganii.* It is recommended that initial episodes of uncomplicated urinary tract infections be treated with a single effective antibacterial agent rather than the combination. *Note:* The increasing frequency of resistant organisms limits the usefulness of all antibacterials, especially in these urinary tract infections.

For acute otitis media in children due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over other antimicrobials. To date, there are limited data on the safety of repeated use of Bactrim in children under two years of age. Bactrim is not indicated for prophylactic or prolonged administration in otitis media at any age.

For acute exacerbations of chronic bronchitis in adults due to susceptible strains of *Haemophilus influenzae* or *Streptococcus pneumoniae* when in physician's judgment it offers an advantage over a single antimicrobial agent.

For enteritis due to susceptible strains of *Shigella flexneri* and *Shigella sonnei* when antibacterial therapy is indicated.

Also for the treatment of documented *Pneumocystis carinii* pneumonitis.

Contraindications: Hypersensitivity to trimethoprim or sulfonamides; patients with documented megaloblastic anemia due to folate deficiency; pregnancy at term; nursing mothers because sulfonamides are excreted in human milk and may cause kernicterus; infants less than 2 months of age.

Warnings: BACTRIM SHOULD NOT BE USED TO TREAT STREPTOCOCCAL PHARYNGITIS. Clinical studies show that patients with group A β-hemolytic streptococcal tonsillopharyngitis have higher incidence of bacteriologic failure when treated with Bactrim than do those treated with penicillin. Deaths from hypersensitivity reactions, hepatocellular necrosis, agranulocytosis, aplastic anemia and other blood dyscrasias have been associated with sulfonamides. Experience with trimethoprim is much more limited but occasional interference with hematopoiesis has been reported as well as an increased incidence of thrombopenia with purpura in elderly patients on certain diuretics, primarily thiazides. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Frequent CBC's are recommended; therapy should be discontinued if a significantly reduced count of any formed blood element is noted.

Precautions: *General:* Use cautiously in patients with impaired renal or hepatic function, possible folate deficiency, severe allergy or bronchial asthma. In patients with glucose-6-phosphate dehydrogenase deficiency, hemolysis, frequently dose-related, may occur. During therapy, maintain adequate fluid intake and perform frequent urinalyses, with careful microscopic examination, and renal function tests, particularly where there is impaired renal function. Bactrim may prolong prothrombin time in those receiving warfarin; reassess coagulation time when administering Bactrim to these patients. *Pregnancy:* Teratogenic Effects: Pregnancy Category C. Because trimethoprim and sulfamethoxazole may interfere with folic acid metabolism, use during pregnancy only if potential benefits justify the potential risk to the fetus.

Adverse Reactions: All major reactions to sulfonamides and trimethoprim are included, even if not reported with Bactrim. *Blood dyscrasias:* Agranulocytosis, aplastic anemia, megaloblastic anemia, thrombopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia and methemoglobinemia. *Allergic reactions:* Erythema multiforme, Stevens-Johnson syndrome, generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia and allergic myocarditis. *Gastrointestinal reactions:* Glossitis, stomatitis, nausea, emesis, abdominal pains, hepatitis, hepatocellular necrosis, diarrhea, pseudomembranous colitis and pancreatitis. *CNS reactions:* Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia, apathy, fatigue, muscle weakness and nervousness. *Miscellaneous reactions:* Drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon. Due to certain chemical similarities to some goitrogens, diuretics (acetazolamide, thiazides) and oral hypoglycemic agents, sulfonamides have caused rare instances of goiter production, diuresis and hypoglycemia in patients; cross-sensitivity with these agents may exist. In rats, long-term therapy with sulfonamides has produced thyroid malignancies.

Dosage: *Not recommended for infants less than two months of age.*

URINARY TRACT INFECTIONS AND SHIGELLOSIS IN ADULTS AND CHILDREN, AND ACUTE OTITIS MEDIA IN CHILDREN:

Adults: Usual adult dosage for urinary tract infections—1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 10-14 days. Use identical daily dosage for 5 days for shigellosis.

Children: Recommended dosage for children with urinary tract infections or acute otitis media—8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole per 24 hours, in two divided doses for 10 days. Use identical daily dosage for 5 days for shigellosis.

For patients with renal impairment: Use recommended dosage regimen when creatinine clearance is above 30 ml/min. If creatinine clearance is between 15 and 30 ml/min, use one-half the usual regimen. Bactrim is not recommended if creatinine clearance is below 15 ml/min.

ACUTE EXACERBATIONS OF CHRONIC BRONCHITIS IN ADULTS:

Usual adult dosage: 1 DS tablet (double strength), 2 tablets (single strength) or 4 teasp. (20 ml) b.i.d. for 14 days.

PNEUMOCYSTIS CARINII PNEUMONITIS:

Recommended dosage: 20 mg/kg trimethoprim and 100 mg/kg sulfamethoxazole per 24 hours in equal doses every 6 hours for 14 days. See complete product information for suggested children's dosage table.

Supplied: *Double Strength (DS) tablets,* each containing 160 mg trimethoprim and 800 mg sulfamethoxazole, bottles of 100 and 500; Tel-E-Dose® packages of 100; Prescription Paks of 20. *Tablets,* each containing 80 mg trimethoprim and 400 mg sulfamethoxazole—bottles of 100 and 500; Tel-E-Dose® packages of 100; Prescription Paks of 40. *Pediatric Suspension,* containing 40 mg trimethoprim and 200 mg sulfamethoxazole per teaspoonful (5 ml); cherry flavored—bottles of 100 ml and 16 oz (1 pint). *Suspension,* containing 40 mg trimethoprim and 200 mg sulfamethoxazole per tea spoonful (5 ml); fruit-licorice flavored—bottles of 16 oz (1 pint).

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future research dealing with the above questions will reveal why there is such a high ratio of ectopic pregnancies among the Native population of Alaska and eventually decrease the incidence of this dangerous condition.

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TUMORAL CALCINOSIS - A PREVENTABLE CONDITION

Jack Dalton, M.D.

It is well known that renal insufficiency causes skeletal abnormalities due to prolonged disturbances of calcium and phosphate metabolism (1,2,3,4,5). There is however an uncommon condition, tumoral calcinosis, which appears to be caused by related factors. A classical example follows.

Case Report:

A 24 year old woman, with a 28 year history of Type I diabetes mellitus, developed progressive renal deterioration, requiring hemodialysis for 5 years prior to admission. From the beginnings of dialysis, she was treated with aluminum carbonate (Basalgel) to inhibit dietary phosphate absorption. Monthly serum phosphate measurements documented inadequate therapy and records showed she was not taking the prescribed phosphate binding medicine.

At the onset of dialysis serum calcium and phosphate determinations were within normal limits. As the patient's residual kidney function worsened hyperphosphatemia developed averaging 8 mg/dl with maximums to 12 mg/dl; serum calcium remained normal. During the 5th year the calcium-phosphate product had an average value over 90 (normal up to 45).

A lobulated radio-opaque mass in the right axillary area was found on chest X-ray (Fig. 1). Subsequent bone scan showed diffuse uptake by the mass (Fig. 2). Cultures of an aspirate were negative for aerobes, anaerobes, fungus and acid-fast bacilli. The mass was resected. It measured 5 cm in diameter and on cut section was found to be a multiply cystic structure with fibrous septa. The cystic spaces were filled with a chalky paste varying in consistency from semi-liquid to hard. The septa contained mononuclear cells, polymorphonuclear leukocytes, and multinucleated giant cells.

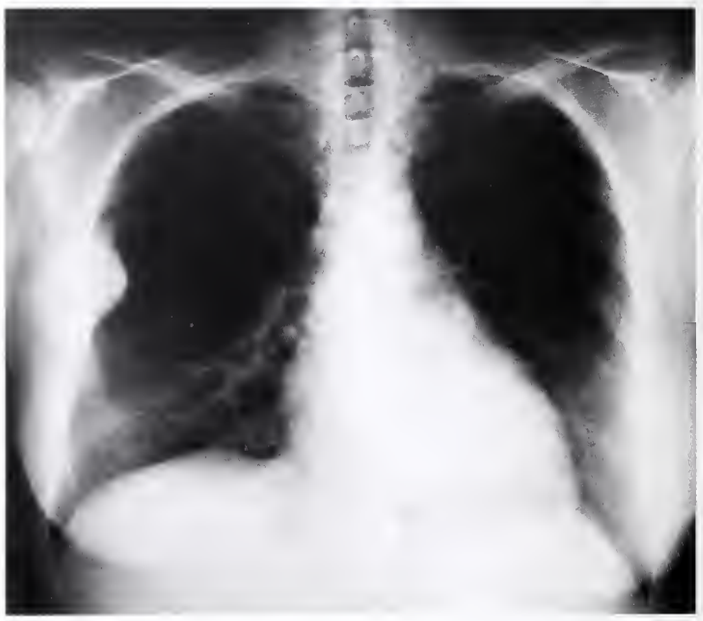

Figure 1.

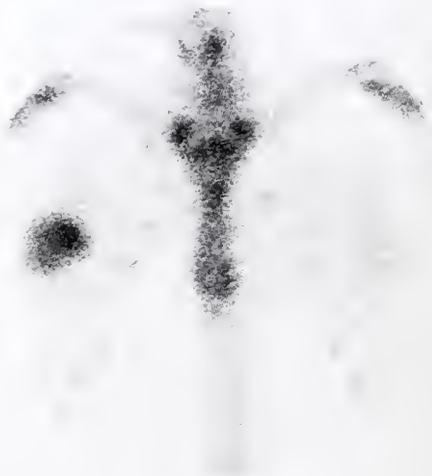

Figure 2.

Discussion

The characteristic X-ray appearance of tumoral calcinosis is a dense lobulated calcification commonly

around hips, shoulders, or elbows (6,7,8). The joints and bone are usually not involved (8). As with the patient described above, the masses are often made up of multiply cystic spaces containing hard calcified material or chalky turbid fluid separated by fibrous septa. On chemical analysis the material contains either calcium phosphate, calcium carbonate, or both (7,8,9). Both mononuclear and polymorphonuclear inflammatory cells as well as multinucleated giant cells are present (7,8).

In addition to hemodialysis patients, the condition occurs as a familial disorder (8,10). Affected individuals have renal phosphate retention but otherwise normal renal function. Calcium and PTH values are normal. The familial form appears to be transmitted as an autosomal recessive: 4 of 12 sibs, male and female, were affected in one family (8). Vertical transmission has not been described. In the family mentioned, hyperphosphatemia was shown to be congenital and to precede the development of the calcified tumors.

In the dialysis population, the condition has only been seen in patients whose hyperphosphatemia is uncontrolled over a prolonged period. These patients have normal serum calcium and 1, 25, D_3 levels (11). Strict control of serum phosphate levels with the use of phosphate-binding antacids has brought about dramatic improvement in lesions of established tumoral calcinosis, demonstrating the pathogenetic importance of hyperphosphatemia in the condition (1, 12).

With knowledge of cause and effect relationship in chronic hyperphosphatemia and tumoral calcinosis, not only may established lesions be improved but the condition may be prevented.

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AMA DELEGATE REPORT 1983

The AMA House of Delegates met in Chicago on June 19-23, 1983. Three hundred fifty-one delegates were seated, 281 delegates representing state medical associations, 61 delegates representing national medical specialty societies and 9 Section and Service delegates representing hospital medical staffs, medical students, medical schools, resident physicians, Army, Navy, Air Force, USPHS, and the Veterans Administration. The American Hospital Association and the American Dental Association sent official observers. At this meeting the House voted to invite the American Osteopathic Association, American Group Practice Association, and the National Medical Association to send official observers.

President Reagan spoke to the House of Delegates on Thursday, June 23. He included in his topics support for federal research for medicine and health, support for the Orphan Drug Act and his hope that the legislation will provide incentives for the private sector to develop drugs to treat rare disease, and the cost of health care and proposals for a one year freeze on Medicare physician reimbursement and co-payments for Medicaid. The President began his remarks by saying "the quality of American medicine is unsurpassed and on that we don't need a second opinion... My respect for your profession is deep and personal." He congratulated the AMA on its cost effectiveness programs and its Health Policy Agenda. He also thanked those medical societies having private sector programs for the needy and unemployed.

Nearly 700 representatives of hospital medical staffs met for the first time in conjunction with the AMA House. Section Officers were elected including an AMA delegate. The Section introduced eight resolutions. There was great enthusiasm for bringing hospital medical staffs into AMA policy-making apparatus and giving medical staffs an important voice on issues affecting them. With 7,000 U.S. hospitals eligible to send representatives, attendance is expected to grow. The Section will meet again at the Interim Meeting in Los Angeles and all hospitals are urged to send representatives. The Section will meet December 2-4, 1983 and the AMA House meets December 4-7, 1983.

The House considered 147 resolutions and 74 reports.

The Alaska State Medical Association Resolution 43, I-82 was referred to the Board of Trustees by the House in December 1982. This resolution

> Resolved, that the American Medical Association endorse concepts embodied in S1562, which would establish priorities and provide financial support for basic and applied scientific research with respect to the Arctic; and be it further
>
> Resolved, that the AMA urge emphasis on scientific research concerning effects of occupational and environmental factors under Arctic conditions on physical and mental health.

Dr. John Middaugh had testified in support of this resolution before the Committee on Legislative Affairs. He was well received and his testimony acclaimed. None-the-less, the committee and the Board of Trustees in Report V advised the House to not adopt the resolution.

Therefore we again offered testimony concerning the virtues of the resolution and the bill to the Council on Legislative Affairs and Reference Committee B at this annual meeting. With favorable comments from the Board of Trustees and Reference Committee B, we were then able to get a favorable vote from the House of Delegates. Thus our resolution has been adopted and is the policy of the American Medical Association. With our added support, health measures are probably insured in this important Arctic Science research legislation.

There was extensive debate on the Medical Staff Section of the JACH **Accreditation Manual for Hospitals** and the House commended the Board of Trustees for its responsible consideration of these difficult issues.

The House affirmed six principles as the basis of any revisions in the JACH manual. There was to be continuation of the term "medical staff" in the title of the chapter and throughout the manual. Deletion of any specific references to limited licensed practitioners now contained in the Medical Staff chapter of the 1983 **Accreditation Manual for Hospitals** will be made. This does not preclude such practitioners from having hospital privileges consonant with their training, experience, and current competence if approved by the normal credentialing process. Consideration will be provided for qualified limited licensed practitioners in accordance with state law and when approved by the executive committee of the medical staff and by the governing board and, when their services are appropriate to the goals and missions of that hospital, taking into account the training, experience and current clinical competence of the practitioners. It was provided that the executive committee of the medical staff be composed of members selected by the medical staff, or appointed in accordance with the hospital bylaws. All members of the active medical staff, as defined in the Medical Staff Bylaws, are eligible for membership on the executive committee, and a majority of the executive committee members must be fully licensed physician members (Doctors of Medicine or Doctors of Osteopathy). Finally, it was also assured that the

continued high quality of care, credentialing of physicians and other licensed practitioners, and the effective quality assurance programs remain under the supervision and direction of fully licensed physicians.

Another issue that generated lengthy discussion was a report presenting an analysis of payment mechanisms utilized by third party payors for reimbursement of physicians' services. The Council on Medical Services presented a comprehensive discussion of **indemnity versus UCR reimbursement** and asked the delegates to consider the matter and discuss it with their constituents over the next six months in preparation for discussion and possible action at the 1983 Interim Meeting in Los Angeles. The Council believes that if third parties change to an indemnity system of payment, patients would be benefitted. These benefits would come through insuring their continued access to care not through external regulation of fees but through market forces, by increasing both physicians' and patients' sensitivity to costs and quality of care provided, by allowing them continued freedom of choice rather than being increasingly restricted to "participating" providers as a condition of coverage and finally by facilitating understanding and comparison of insurance coverages.

The report states that rate determination for third parties would be simpler. For physicians, the Council believes that the indemnity approach could bring improved patient/physician interaction by eliminating false expectations of the amount of the third party payment. This approach, the report states, will also provide physicians the freedom to charge what they believe to be a fair and equitable fee, subject only to normal and effective market constraints.

In the Board of Trustees Report W the House voted to provide for a position on the Board for a resident physician who would be elected by the House for a two year term and could serve a maximum of three terms. The constitution and Bylaws would have to be changed to reflect this at the Interim Meeting. The Election would be held at the 1984 Annual Meeting and nominations could be submitted by an delegate.

In the Board of Trustees Report X the House also voted to create a nonvoting medical student position on the Board. The appointment would be annually from two or more nominations presented by the AMA Medical Student Section Governing Council. The individual would be eligible for reappointment as long as he or she remained a medical student member of the AMA. The Constitution and Bylaws would have to be amended at the Interim Meeting.

In the study of cost shifting, Resolution 8, American Society of Internal Medicine, the House adopted the resolution calling upon the Association to conduct the study. The resolution indicated that there is a "growing evidence that inadequate reimbursement by government funded third party programs has forced hospitals to shift more costs to patients enrolled in private health insurance plans". In addition the resolution says that proposals such as prospective reimbursement and vouchers for Medicare have the potential to exacerbate the cost shifting problem.

After modifying a Louisiana Resolution (Substitute Resolution 15) pertaining to TEFRA regulations, the House voted to continue to give a high priority to prompt withdrawal of regulations to implement Section 108 of TEFRA relating to the Medicare program's payment of physician services. The AMA was successful in delaying implementation of the regulations and in urging withdrawal.

In Substitute Resolution 22 the House modified its existing definition of "Physician" to include Doctors of Osteopathy.. The definition now reads:

> "A physician is a person who, having been regularly admitted to a medical school or a school of osteopathic medicine duly recognized in the country in which it is located, has successfully completed the prescribed course of studies in medicine or osteopathic medicine and has acquired the requisite qualifications to be legally licensed to practice medicine or osteopathic medicine."

In addition the House voted to initiate and support legislation in the 98th Congress to amend appropriate sections of the Social Security Act to conform to the AMA definition of physician.

In Substitute Resolution 78 (Oklahoma, Kansas) the House called upon the AMA to develop a model public education program for use by constituent societies. The program would deal with the potential threat to the quality of medical care from legislative proposals, i.e., TEFRA and prospective payment systems.

The House urged state and county medical societies to develop with AMA assistance "Key Physician" contact to aid the AMA staff in its Washington program. The House also commended the AMA officers and staff, particularly the Washington Staff, for their "superlative efforts on behalf of the FTC Issue".

In the Council on Medical Education, Report C the House adopted a report that guarantees anonymity of a resident physician who initiates an injury by a residency review committee into the conduct of a residency program. The procedure incorporates two basic principles; that the residents should have available a process that allows them to bring forth concerns without fear of reprisal, and that residency program directors and their teaching staffs should be protected from spurious complaints.

The House adopted a report from the Council on Medical Education (Report A) concluding that a sufficient number of residency positions are available in the Matching Program to accommodate current graduates of U.S. Medical Schools. However, there is no assurance that all U.S. graduates will obtain their choice of specialty and/or location. The report says that first year enrollment in U.S. medical schools declined for the first time in 20 years of rapid expansion. This decline may be a response to the general perception that continued

increase in output is no longer a national need. Financial limitations may be responsible for this trend also.

In Substitute Resolution 146, Hospital Medical Staff Section, the House voted to encourage medical staffs to consult with their own attorneys or those of their county medical society, state medical society, and/or AMA in securing knowledgeable legal counsel as appropriate.

In Substitute Resolution 147, Hospital Medical Staff Section, the House voted to encourage medical staff peer review committees when evaluating the professional practices of fully licensed physicians to consider excusing non-physician members of the committee.

In the Board of Trustees Report KK the House adopted the report recommending that the Food and Drug Administration act promptly to review the issue of advertising prescription drugs to the public and that this advertising be held in abeyance pending the FDA's review. The report cautioned that

> "Prescription drug advertising, whether to the health professions or to the public, that is false or misleading or does not give adequate information on beneficial as well as adverse effects is potentially dangerous and should be opposed."

In Resolution 81, Ohio, concerning therapeutic substitution, after much discussion testimony from pharmacists' organization in the reference committee, a straightforward policy was adopted. It reads,

> "That the AMA vigorously oppose any concept of therapeutic substitution of drugs by pharmacists."

In the matter of education of the public regarding dioxin, Resolution 12, Missouri, the "whereas" portion of this resolution was given widespread media attention, however, the House Action called on the AMA to institute an active public information campaign to get accurate information on dioxin before the public and to update a 1981 report on the subject.

In Resolution 137, Medical Student Section, the House adopted a resolution calling on the AMA to develop and distribute materials to students and residents stressing the importance and necessity of the autopsy. It was also requested to provide guidelines for obtaining medical/legal consent from families for the performance of this procedure and to investigate means of encouraging a higher proportion of autopsies.

The House voted to raise the regular dues by $15.00 and $5.00 for medical students in the Board of Trustees Report V. Resident physician dues were not increased. The Board reduced its anticipated dues increase because of the current financial strength of the Association and the Board's desire to increase membership in all categories. In 1984 dues levels will be:

$330 -- Regular members
$248 -- Physicians in their second year of practice
$220 -- Physicians in military service
$165 -- Physicians in their first year of practice
$ 45 -- Physicians in residency training
$ 20 -- Medical Students

The House adopted an amended report, Board of Trustees Report L, prepared by the Commission an Emergency Medical Services that presented initial criteria to aid in determining whether a practice can truly offer a full range of emergency medical services. The criteria included hours of operation, staffing and medical direction, relationship to the emergency medical services system, ancillary services and equipment, protocols, private physician referrals, medical records and payment of services.

Report B, Council on Medical Services, was adopted by the House and it recommended more aggressive implementation by HHS and HCFA of existing provisions in federal legislation calling for equity of reimbursement between services provided by hospitals on an outpatient basis and similar services in physicians' offices.

Resolution 80, Ohio, concerning boxing as a health hazard, was adopted and called for the AMA to publicize the deleterious effects of boxing on the health of participants, encourage the elimination of boxing from amateur scholastic, intercollegiate, and governmental athletic programs as detrimental to the health of participants and develop model legislation seeking to curtail the utilization of boxing as a public spectacle to the extent feasible.

In conclusion, the AMA House meetings provided a unique educational opportunity and I would encourage you to attend and participate. Any member of the Association may present testimony at the Reference Committee hearings and, of course, corridor discussions on the issues provide ample opportunities to get your views across.

If you can't come to the meeting you can still be represented through your delegate. Let your delegation know your opinions. You can also prepare a resolution and request that it be submitted to the House.

Many, many AMA policies began with an individual physician who had a good idea and coaxed it through the democratic process.

I will be happy to respond to any questions.

Richard L. Witt, M.D.
Delegate

Anxious patients improve in just a few days

And what is more reassuring to an excessively anxious patient than medication that promptly starts to relieve his discomforting symptoms? Valium® (diazepam/Roche) begins working within 30 to 90 minutes. Patients continue to improve in just a few days, and relief continues throughout the course of treatment.

There are other important benefits with Valium as well—along with its broad clinical range, Valium has an efficacy/safety profile that few, if any, drugs can match. This record has been achieved with extensive clinical experience, undoubtedly including yours. And, as you must have observed, side effects more serious than drowsiness, fatigue or ataxia rarely occur. Nevertheless, as with any CNS-acting agent, patients should be cautioned about driving, operating hazardous machinery or ingesting alcohol or other CNS-depressant drugs while taking Valium.

Yet another benefit Valium affords is flexibility. Available in 2-mg, 5-mg and 10-mg scored tablets, Valium enables you to titrate dosage to individual patient needs. For the geriatric patient, a starting dosage of 2 to 2½ mg once or twice a day is recommended. And, for patients who forget or skip medication, you can prescribe Valrelease™ (diazepam/Roche) 15-mg slow-release capsules, knowing that Valrelease will assure all the benefits of Valium 5 mg *t.i.d.* with the convenience of once-a-day dosage.

Discontinuation of Valium (or Valrelease) is typically as smooth as its start in short-term therapy. However, Valium and Valrelease should be discontinued gradually after more extended treatment. As you diminish dosage, the built-in tapering action of Valium and Valrelease will help avoid rapidly recurring anxiety symptoms and symptoms of withdrawal, and will help ease the patient's transition to independent coping when therapeutic goals have been achieved.

...that's one of the unique benefits of

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diazepam/Roche

For a summary of product information, please turn the page.

ROCHE®

Valium® (diazepam/Roche) Ⓝ Tablets
Valrelease™ (diazepam/Roche) Ⓝ slow-release Capsules
Injectable Valium® (diazepam/Roche) Ⓝ

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Management of anxiety disorders, or short-term relief of symptoms of anxiety. Anxiety or tension associated with the stress of everyday life usually does not require treatment with an anxiolytic. Symptomatic relief of acute agitation, tremor, impending or acute delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in: relief of skeletal muscle spasm due to reflex spasm to local pathology; spasticity caused by upper motor neuron disorders; athetosis; stiff-man syndrome. *Oral forms* may be used adjunctively in convulsive disorders, but not as sole therapy. *Injectable form* may also be used adjunctively in: status epilepticus, severe recurrent seizures; tetanus; anxiety, tension or acute stress reactions prior to endoscopic/surgical procedures; cardioversion.

The effectiveness of diazepam in long-term use, that is, more than 4 months, has not been assessed by systematic clinical studies. The physician should periodically reassess the usefulness of the drug for the individual patient.

Contraindications: Tablets or capsules in children under 6 months of age; known hypersensitivity; acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: As with most CNS-acting drugs, caution against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Withdrawal symptoms similar to those with barbiturates and alcohol have been observed with abrupt discontinuation, usually limited to extended use and excessive doses. Infrequently, milder withdrawal symptoms have been reported following abrupt discontinuation of benzodiazepines after continuous use, generally at higher therapeutic levels, for at least several months. After extended therapy, gradually taper dosage. Keep addiction-prone individuals (drug addicts or alcoholics) under careful surveillance because of predisposition to habituation/dependence.

> *Usage in Pregnancy:* **Use of minor tranquilizers during first trimester should almost always be avoided because their use is rarely a matter of urgency and because of increased risk of congenital malformations, as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.**

ORAL Advise patients against simultaneous ingestion of alcohol and other CNS depressants.

Not of value in treatment of psychotic patients, should not be employed in lieu of appropriate treatment. When using oral forms adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increase in dosage of standard anticonvulsant medication, abrupt withdrawal in such cases may be associated with temporary increase in frequency and/or severity of seizures.

INJECTABLE *To reduce the possibility of venous thrombosis, phlebitis, local irritation, swelling and, rarely, vascular impairment when used I.V.: inject slowly; taking at least one minute for each 5 mg (1 ml) given; do not use small veins,* i.e., *dorsum of hand or wrist, use extreme care to avoid intra-arterial administration or extravasation. Do not mix or dilute with other solutions or drugs in syringe or infusion flask. If it is not feasible to administer Injectable Valium directly I.V., it may be injected slowly through the infusion tubing as close as possible to the vein insertion.*

Administer with extreme care to elderly, very ill, those with limited pulmonary reserve because of possibility of apnea and/or cardiac arrest; concomitant use of barbiturates, alcohol or other CNS depressants increases depression with increased risk of apnea; have resuscitative facilities available. When used with narcotic analgesic eliminate or reduce narcotic dosage at least 1/3, administer in small increments. Should not be administered to patients in shock, coma, acute alcoholic intoxication with depression of vital signs.

Has precipitated tonic status epilepticus in patients treated for petit mal status or petit mal variant status. Not recommended for OB use.

Efficacy/safety not established in neonates (age 30 days or less); prolonged CNS depression observed. In children, give slowly (up to 0.25 mg/kg over 3 minutes) to avoid apnea or prolonged somnolence; can be repeated after 15 to 30 minutes. If no relief after third administration, appropriate adjunctive therapy is recommended.

Precautions: If combined with other psychotropics or anticonvulsants, carefully consider individual pharmacologic effects—particularly with known compounds which may potentiate action of diazepam, *i.e.*, phenothiazines, narcotics, barbiturates, MAO inhibitors and antidepressants. Protective measures indicated in highly anxious patients with accompanying depression who may have suicidal tendencies. Observe usual precautions in impaired hepatic function; avoid accumulation in patients with compromised kidney function. Limit oral dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation (initially 2 to 2½ mg once or twice daily, increasing gradually as needed and tolerated).

The clearance of diazepam and certain other benzodiazepines can be delayed in association with Tagamet (cimetidine) administration. The clinical significance of this is unclear.

INJECTABLE Although promptly controlled, seizures may return; readminister if necessary; not recommended for long-term maintenance therapy. Laryngospasm/increased cough reflex are possible during peroral endoscopic procedures; use topical anesthetic, have necessary countermeasures available. Hypotension or muscular weakness possible, particularly when used with narcotics, barbiturates or alcohol. Use lower doses (2 to 5 mg) for elderly/debilitated.

Adverse Reactions: Side effects most commonly reported were drowsiness, fatigue, ataxia. Infrequently encountered were confusion, constipation, depression, diplopia, dysarthria, headache, hypotension, incontinence, jaundice, changes in libido, nausea, changes in salivation, skin rash, slurred speech, tremor, urinary retention, vertigo, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances and stimulation have been reported; should these occur, discontinue drug.

Because of isolated reports of neutropenia and jaundice, periodic blood counts, liver function tests advisable during long-term therapy. Minor changes in EEG patterns, usually low-voltage fast activity, observed in patients during and after diazepam therapy are of no known significance.

INJECTABLE Venous thrombosis/phlebitis at injection site, hypoactivity, syncope, bradycardia, cardiovascular collapse, nystagmus, urticaria, hiccups, neutropenia.

In peroral endoscopic procedures, coughing, depressed respiration, dyspnea, hyperventilation, laryngospasm/pain in throat or chest have been reported.

Dosage: Individualize for maximum beneficial effect.

ORAL *Adults:* Anxiety disorders, relief of symptoms of anxiety—Valium (diazepam/Roche) tablets, 2 to 10 mg b.i.d. to q.i.d.; or 1 or 2 Valrelease capsules (15 to 30 mg) daily. Acute alcohol withdrawal—tablets, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; or 2 capsules (30 mg) the first 24 hours, then 1 capsule (15 mg) daily as needed. Adjunctively in skeletal muscle spasm—tablets, 2 to 10 mg t.i.d. or q.i.d.; or 1 or 2 capsules (15 to 30 mg) once daily. Adjunctively in convulsive disorders—tablets, 2 to 10 mg b.i.d. to q.i.d.; or 1 or 2 capsules (15 to 30 mg) once daily.

Geriatric or debilitated patients: Tablets—2 to 2½ mg 1 or 2 times daily initially, increasing as needed and tolerated (see Precautions). Capsules—1 capsule (15 mg) daily when 5 mg oral Valium has been determined as the optimal daily dose.

Children: Tablets—1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use in children under 6 months). Capsules—1 capsule (15 mg) daily when 5 mg oral Valium has been determined as the optimal daily dose (not for use in children under 6 months).

INJECTABLE: Usual initial dose in older children and adults is 2 to 20 mg I.M. or I.V., depending on indication and severity. Larger doses may be required in some conditions (tetanus). In acute conditions injection may be repeated within 1 hour, although interval of 3 to 4 hours is usually satisfactory. Lower doses (usually 2 to 5 mg) with slow dosage increase for elderly or debilitated patients and when sedative drugs are added. (See Warnings and Adverse Reactions.)

For dosages in infants and children see below; have resuscitative facilities available.

I.M. use: by deep injection into the muscle.

I.V. use: inject slowly, take at least one minute for each 5 mg (1 ml) given. Do not use small veins, i.e., *dorsum of hand or wrist. Use extreme care to avoid intra-arterial administration or extravasation. Do not mix or dilute Valium with other solutions or drugs in syringe or infusion flask. If it is not feasible to administer Valium directly I.V., it may be injected slowly through the infusion tubing as close as possible to the vein insertion.*

Moderate anxiety disorders and symptoms of anxiety, 2 to 5 mg I.M. or I.V., and severe anxiety disorders and symptoms of anxiety, 5 to 10 mg I.M. or I.V., repeat in 3 to 4 hours if necessary; acute alcohol withdrawal, 10 mg I.M. or I.V. initially, then 5 to 10 mg in 3 to 4 hours if necessary. Muscle spasm, in adults, 5 to 10 mg I.M. or I.V. initially, then 5 to 10 mg in 3 to 4 hours if necessary (tetanus may require larger doses); in children *administer I.V. slowly*; for tetanus in infants over 30 days of age, 1 to 2 mg I.M. or I.V., repeat every 3 to 4 hours if necessary; in children 5 years or older, 5 to 10 mg repeated every 3 to 4 hours as needed. Respiratory assistance should be available.

Status epilepticus, severe recurrent convulsive seizures (I.V. route preferred), 5 to 10 mg adult dose administered slowly, repeat at 10- to 15-minute intervals up to 30 mg maximum. Repeat in 2 to 4 hours if necessary, keeping in mind possibility of residual active metabolites. Use caution in presence of chronic lung disease or unstable cardiovascular status. Infants (over 30 days) and children (under 5 years), 0.2 to 0.5 mg slowly every 2 to 5 min., up to 5 mg (I.V. preferred). Children 5 years plus, 1 mg every 2 to 5 min., up to 10 mg (slow I.V. preferred), repeat in 2 to 4 hours if needed. EEG monitoring may be helpful.

In endoscopic procedures, titrate I.V. dosage to desired sedative response, generally 10 mg or less but up to 20 mg (if narcotics are omitted) immediately prior to procedure; if I.V. cannot be used, 5 to 10 mg I.M. approximately 30 minutes prior to procedure. As preoperative medication, 10 mg I.M.; in cardioversion, 5 to 15 mg I.V. within 5 to 10 minutes prior to procedure. Once acute symptomatology has been properly controlled with injectable form, patient may be placed on oral form if further treatment is required.

Management of Overdosage: Manifestations include somnolence, confusion, coma, diminished reflexes. Monitor respiration, pulse, blood pressure; employ general supportive measures, I.V. fluids, adequate airway. Use levarterenol or metaraminol for hypotension. Dialysis is of limited value.

How Supplied:

ORAL Valium scored tablets—2 mg, white; 5 mg, yellow; 10 mg, blue—bottles of 100 and 500, Prescription Paks of 50, available in trays of 10; Tel-E-Dose® packages of 100, available in trays of 4 reverse-numbered boxes of 25 and in boxes containing 10 strips of 10.

Valrelease (diazepam/Roche) slow-release capsules—15 mg (yellow and blue), bottles of 100, Prescription Paks of 30.

INJECTABLE Ampuls, 2 ml, boxes of 10; Vials, 10 ml, boxes of 1; Tel-E-Ject® (disposable syringes), 2 ml, boxes of 10. Each ml contains 5 mg diazepam, compounded with 40% propylene glycol, 10% ethyl alcohol, 5% sodium benzoate and benzoic acid as buffers, and 1.5% benzyl alcohol as preservative.

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MEDICAL LEGAL COMMITTEE REPORT

THE EXPERT ADVISORY PANEL SYSTEM IN ALASKA, AN INTEGRAL PART OF MALPRACTICE ISSUES

Society has frequently dealt harshly with real or imagined errors by physicians and healers. The code of Hammurabi required the sacrifice of a proportionate part of the physician's anatomy if the patient did not do well. "If a doctor has treated a man with a knife for a severe wound, and has caused the man to die, or has opened a man's tumor with a metal knife and destroyed the man's eye, his hands shall be cut off." The general trend of civilization in modern times has been to deal less harshly with its healers. Surgeons would be in short supply if every amputation performed for diabetic gangrene resulted in a similar loss of the surgeon's anatomy. Who would manage myocardial infarctions if the physician were made to suffer a similar fate.

Society still maintains its right to discipline errant physicians. While there should be no discussion of Society's right to demand responsible behavior from its healers, there may be discussion as to the best methods of insuring said behavior.

Some personal injury attorneys appear to believe that every physician is a malpractitioner. In contra-distinction, some physicians are of the opinion that malpractice does not exist. Those physicians consider certain errors in judgement do occur but certainly never malpractice. The task is to accommodate opposing views and to protect the best interests of society as a whole. The escalation of malpractice premiums which began in the '60's reached crisis proportion in the early '70's. The physicians of many states sought relief from the burden of premiums in various ways. Group insurance cooperatives, work slow-downs, elective surgery boycotts and proposals for legislative relief became the order of the day. In a much celebrated but ultimately unsuccessful case, a physician actually sued an attorney for being included in a malpractice suit.

Alaskan physicians were not spared the malpractice maladies. By 1973 malpractice premiums were virtually unaffordable. At least one insurance carrier ceased writing policies in the state. A limited elective surgery boycott was staged and legislative relief was sought. Dr. Rodman Wilson, Dr. Robert Whaley and others were able to secure passage of the Expert Advisory Act. This has been incorporated in the Alaska Statute Code of Civil Procedure Section 09.55.536. This law established the present Expert Advisory Panel system. Dr. Wilson and others were of the opinion that doctors were most qualified to determine whether or not a patient had been injured as a result of medical care provided. The contention was and remains, given the opportunity of a fair and impartial setting, doctors would reliably and accurately access the presence and extent of injuries the patient may have suffered as a result of medical care.

The process of pre-trial discovery can be an arduous and expensive undertaking. Ulterior motives frequently prompt obfuscation of issues as well as misleading statements and the concealing of pertinent facts by one party or the other. Much time and money can be expended before the merits of the action are apparent. Functioning properly, the Expert Advisory Panel should be able to circumvent this expensive agony, and yet provide the Court with an informed impartial opinion of the merits of the case. Armed with this information, the Court is in a much better position to deal effectively with the issues at hand. In the Spring of 1979, Dr. Wilson and members of the ad hoc judiciary committee met with Judge Ralph Moody to define the mechanics of the Expert Advisory Panel. At the outset it was the intent of all parties present to assure that the Court be at all times in control of the panel.

The mechanism of panel selection should be such that the Alaska State Medical Association would only give recommendations as to the membership of a panel but the Court make the ultimate selection. As with any endeavor there were glitches and growing pains. Some defense attorneys and most plaintiff attorneys were openly skeptical that the panel system would work. Physicians for the most party appeared hopeful but skeptical. From these meetings the present protocol for selection of panel members evolved. The Court has ruled this procedure in effect for the Third Judicial District. Other districts are free to follow this format or not as they deem appropriate. The hope of the ad hoc judiciary committee was that the procedure would ultimately be effected state-wide. To date this is partly but not uniformly so.

The present mechanics of the Panel system involve the Court, the Alaska State Medical Association, counsel for plaintiff and defendant, as well as the members of the medical profession at large. Upon initiation of a malpractice action, defendant or plaintiff may request the formation of an expert advisory panel (EAP). Upon formal application to the Court to establish the EAP, notification is given to defendant, plaintiff and the Alaska State Medical Association. The Alaska State Medical Association then has 30 days in which to provide the Court with recommendations as to the composition of the Panel.

By law the panel is to be composed of three members. By agreement, Alaska State Medical Association provides the names of three persons for each position. This insures that it is the Court which eventually determines the specific individuals who will serve on the panel. The names of the three physicians or appropriate other health personnel for each of the three

appropriate other health personnel for each of the three positions on the panel are provided by the Alaska State Medical Association. Upon receipt of the recommendations from the Alaska State Medical Association, the Court has 30 days in which to make its appointment. Once formed, the panel has 30 days in which to meet, select a chairman, review the case and make its report to the Court. The Court then is free to act appropriately on these recommendations. There have been in excess of 60 panels formed to date. For the most part, these panels have functioned quite effectively and delivered their throughtful diligent appraisals in a timely fashion. There are the unhappy exceptions. The exceptions are loudly proclaimed by some attorneys as evidence that the panel system is ineffective. There has been an action filed by one law firm seeking to overthrow the panel system in its entirety. In my opinion this would be unfortunate.

The panel system provides an opportunity to review the merits of a given case in an expeditious fashion. The conclusions of the panel are given credence by the Court. As a result, the frequently long acrimonious process of discovery is at least in part avoided. Given these observations, it follows that we as physicians have an obligation to ensure the proper functioning of the panels.

Because of the volume of requests for panels, we have had to seek assistance from the staff of the Alaska State Medical Association. It has simply become too time consuming for each prospective panel member to be contacted by a physician. Therefore, if you are contacted by one of the staff members and asked to serve on the panel please remember that the complaint will have been reviewed by the Medical Legal Committee chairman or one of the members of the Medical Legal Committee prior to any contacts from the Alaska State Medical Association staff. Please also remember that even if you agree to serve, you have only a one-in-three chance of being chosen by the Court. If you are chosen please approach the matter efficiently and diligently. It is of great importance to us all.

The law specifies a series of questions that are to be addressed by the panel. As a panel you are required only to answer these questions. If you feel specific comments will clarify your response please add them. However, you should not engage yourselves with matters of speculation that are not addressed by the complaint. Please try to complete your work within the time allotted by the Court. Once you are chosen please make arrangements to meet and choose a chairman as soon as possible. The panel should be provided a copy of the pertinent medical records when it is chosen. You are free to interview the patient or the doctor if you feel this would be desirable. Requests to interview the patient should be handled through the Court with the assistance of the Alaska State Medical Association staff. If you do not have the materials you feel are necessary to reach a conclusion, please contact the ASMA staff for assistance. The ASMA staff is by now experienced and will be able to assist you in obtaining the information you need from the Court. A copy of the pertinent portions of the law will be enclosed with your appointment to the panel. A copy of the pertinent statutes also follows this article as well as a hypothetical case and how it might be answered by the panel. If you have any questions regarding the panel system please direct them to the Medical Legal Committee.

David A. McGuire, M.D.
Chairman, Medical Legal Committee

Example:

CASE REPORT

A 67-year-old female who is otherwise well slipped and fell at home. She had severe pain in her right hip and was unable to walk. She was subsequently brought to the Emergency Room by the Paramedics. Evaluation by the doctor in the Emergency Room showed pain in the right hip. X-rays were taken and a fracture of the right hip was seen. An orthopedist was called who examined the patient and the X-rays and determined that indeed a fracture of the right hip was evident. The patient was hospitalized. The orthopedist recommended open reduction and internal fixation of the right hip. The surgery was carried out the following day and the patient sustained an uneventful postoperative course during hospitalization. She was discharged with directions to complete follow-up in the surgeon's office. The fracture went on to heal; however, the patient complained of persistent pain in and about the area of the incision. The patient was dissatisified with the degree of pain she had and ultimately consulted another surgeon. Twenty-one months after the operation, because of persistent pain in the hip, a consulting surgeon recommended removal of the internal fixation devise. Following removal of the internal fixation devise the patient's pain was relieved; she had a functionally normal gait but a rather large scar on her right hip. The patient filed suite complaining that internal fixation of the hip was not necessary or appropriate treatment, and that had the orthopedic surgeon treated her with a cast she would not have had the ugly scar. She would not have had to have two operations either.

Following this, the panel is appointed. The panel meets and reviews all pertinent records of the hospitalization, the records of the consulting surgeon and the X-rays. The panel notes from the consulting orthopedic surgeon that the incision on the patient's leg is 10 inches in length, 4 mm in width and is well healed without evidence of drainage. They further note that the patient is able to walk unassisted, does not require a cane, and has returned to volunteer activity for a local charity.

The reply to the presiding judge might be structured as follows:

The Honorable _____, Superior Court Judge
Superior Court, State of Alaska

Third Judicial District
303 K Street
Anchorage, Alaska 99501

Re: Madam Plaintiff vs Dr. Bonecrusher
Civil Case #000000

Dear Judge _____:

Pursuant to your letter of _____, with attached order appointing expert advisory panel dated _____, the undersigned have met and herewith render the following report.

The material reviewed by this panel in arriving at this report included and was limited to the following:

1. The case records and office notes from Drs. Bonecrusher and Wellhealer through the period of _____to_____.

2. The X-rays and Emergency Room notes from St. Elsewhere General from the period _____ to_____, concerning Madam Plaintiff.

3. The office records of Dr. Othercity from the Nuetrino Boson Clinic in Othercity, U.S.A.

4. A review of the medical literature comprising 6 pertinent articles regarding treatment of fractures of the hips.

Copies of all of the above materal are attached.

In addressing itself to the questions imposed in paragraph 8 of the order appointing an expert advisory panel, the Panel submits the following answers:

1. What was the disorder for which the plaintiff came to medicare care?

Ans.: The patient sought medical care for a fractured right hip.

2. What would have been the probable outcome without medical care?

Ans.: The probable outcome would have been malunion or nonunion with persistent limp, pain and disability.

3. Was the treatment selected appropriate for the case?

Ans.: Yes, the treatment selected by Dr. Bonecrusher was appropriate.

4. Did an injury arise from the medical care?

Ans: No, there was no injury arising from the medical care.

5. What is the nature and extent of the medical injury?

Ans.: There was no medical injury.

6. What specifically caused the medical injury?

Ans.: There was no medical injury.

7. Was the medical injury caused by unskillful care?

Ans.: There was no medical injury.

8. If the medical injury had not occurred, how would the plaintiff's condition differ from the present condition?

Ans.: There was no medical injury.

Following the answer to these questions, if the Panel deems it appropriate, it might further enlarge on any of the above answered questions, or at its discretion might bring pertinent facts to the attention of the Court; however, caution is advised to not engage in meaningless speculation concerning the case. An effort should be made to confine the answers to the questions posed, based upon the pertinent material available. Following completion of the report, the report should be signed by each individual panel member. There is provision in the law that if the panel members are not unanimous in their opinion, that a minority opinion may be drafted and signed by the minority member.

ALASKA MEDICINE ESSAY:

TEA and DRG's

During the most recent Alaska State Medical Association Council meeting, one of the younger members, a physician of considerable talent who is looked upon with great esteem by most of us, young or ageing became exasperated by the concerns of some of us and stated to the essayist that the posturing of my generation was what had gotten us into the bad light in which we now find ourselves. He further indicates that such attitudes were leading us down the path to ruin. This was somewhat of a heady indictment and brought about some reflections by this greybeard.

The matter of discussion that precipitated the remark was the concern of the Council over a law and regulations being considered currently. The whole thing had eluded us in our attempts to monitor legislation. Suddenly we were confronted by a need to react, quickly, to regulations being proposed concerning a drug control law passed by the recent legislature. The law puts licensing of physicians to prescribe controlled substances under the control of the State Board of Pharmacy. Physicians are not represented on the board. The proposed regulations have little or no recorded due proces procedure. In addition, we physicians will have to pay a fee for a state license to prescribe. Tea got wet in Boston two hundred years ago because of this sort of thing, but my young tory friend didn't seem to find it objectionable. The Council did.

In the same vein, but in a different setting, an academician was recently explaining Diagnostically Related Groups (DRG's) to a group of concerned, involved influential local citizens. This new method of paying hospitals for services rendered to medical recipients has been made the law of the land and went into effect October first. The plan was invented by the folks at Yale and did have a trial of sorts in New Jersey. The plan, however, was combined in New Jersey with a new method of paying for services to the otherwise indigent. Most participating hospitals are said to have become more solvent during the period the plan was in effect. There is no public knowledge reported as to which part of the experiment resulted in the new found solvency. None the less, Congress and the President have put the law into effect and it is now the order of the day. All of this is done in the name of cutting costs and saving money. There is little said about quality of care. The academician explaining all of this equated it to his own worth and salary. If he were to do his work and be paid according to whatever he reckoned it worth, he would be able to live one way. On the other hand, if he were given a certain amount of money for doing his work and had to live within that income, he would most likely live another way, albeit a more frugal cost saving way. I tend to agee with what he said about the way he would live, and save but I submit that the analogy has little or nothing to do with DRG's or the care of sick or injured people.

The old Medicare system was an insurance type arrangement in which the federal government and the hospitals agreed to care for the Medicare patient. The hospital was to provide the best possible care, as prescribed by the physician and dictated by good hospital policies; the government would pay the bill, admittedly by a discounted contract. The understanding had always been best **quality** care. The new arrangement calls for a set payment to the hospitals for the care of a patient according to his diagnosis. If the patient gets well rapidly and is able to leave the hospital quickly then the hospital profits and may keep the change. If the patient requires more time and effort and care, there may well be a cost overrun which the hospital must then bear. Additional allowances are made for other factors such as complications and unusual situations with the Orwelliam term "outliers". The essence though is not one of salary for work done, but rather that the ageing patient is the pawn caught out in the no mans land of the cost war. If he is ill and enters the hospital, the hospital profits or losses depending on how quickly he gets well and on the amount of hospital care and treatment that is expended upon him. The regulations are not concerned very much with quality. Benevolent as the hospitals are, the patient had best be wary. The American Medical Association official position on this matter is to be closely observant. A report is promised at the AMA Interim Meeting in December 1983. The AMA urged strongly that true scientific trials be done before any significant changes were made, but such was not the way.

Physicians as far as I am aware, only know one way to care for patients. That of course is the best possible way. The prevailing law now demands that a patient in Anchorage be treated according to the same "standards" as a patient in New York or San Francisco or wherever.

I wonder what my young friend thinks about this. In fact, how many physicians are aware of it and have given it any thought at all?

Richard L. Witt, M.D.
September 26, 1983

PRESIDENT'S PAGE

"ONCE MORE INTO THE BREACH"

As I sit writing this letter on the flight from Anchorage back to Fairbanks, I am reminded of Shakespeare's Henry V urging his forces onto the field of Angicourt.

Granted the battles we physicians in Alaska face may not be as violent as Medieval combat, but the outcome of our combat will be just as deadly. Like Henry's band, we are besieged, outnumbered and surrounded by powerful forces. Fortunately, we also consist of good, solid, honest people who believe that the cause is just and right.

Each Alaskan physician is a shining example of what medicine stands for in his caring delivery of health care in the bush, the villages and the cities. That is all anyone has the right to ask of you -- that you practice medicine to the best of your ability . . . with care, skill and understanding.

But I have to ask more . . . I have to ask you to rally once more into the breach.

The omnibus drug bill that passed last year provides for the setting up of the State Drug Enforcement procedure that will require the Alaskan physicians to have a state narcotics number as well as a federal narcotics number. So what? This is just another layer of bureaucracy you might say, however the danger lies in how that state narcotics license is regulated. The power to revoke that license is solely in the **hands of the Board of Pharmacy**. No physicians sit on that Board. The license can be suspended for probable cause pending an investigation. The definition of probable cause is vague and not specific and no definite time is required for a hearing.

The alleviation of pain and suffering is one of the keystones of medicine. This bill jeopardizes your ability to practice medicine. Your ability to administer pain relieving medications can be stopped for nebulous reasons, and the control of your medical practice now rests within the Pharmacy Board. This cannot be!

I urge all of you to join with your medical society to change these unacceptable regulations and to change this legislation. An amendment is clearly needed. We will all need to join together against this very real danger.

It is for our patients, for our practice -- once more into the breach!

Richard G. Parry, M.D.
President

EDITORIAL

This issue of The Journal introduces the Alaska Medicine Essay, a new section devoted to just that, an Alaska medicine essay. We of the editorial staff invite essays on various topics of politics as it pertains to medicine, the changing modes of practice, responsible opinions and topic of interest. We should like to use the new section as a sounding board reflecting thoughts and ideas of our subscribers.

As medicine limps into 1984 many government regulations, restrictions and untested theories shall engulf our hospitals only to follow into private practice. All too many young physicians may be like the Tory in Dr. Witt's essay. However, today's paranoia is tomorrow's regulations. Think about it, then voice your opinions.

FRIENDS OF MEDICINE

Rarely physicians in the medical community become impaired, be it from alcohol, drugs, emotional illness or senility. ASMA through the Friends of Medicine has established means to help deal with problems of such individuals. If you know of any physician in need of assistance please call the ASMA office at 562-2662. Help rendered early in the course of many illnesses may prevent irreversible damage.

Local PECABU Program Wins National Award

PECABU, the Infant Seat Loaner program of the Anchorage Medical Society Auxiliary was awarded the First Place Winner in the National Highway Traffic Safety Council's Safety Belt and Child Safety Seat educational program contest. Lorrie Horning, PECABU Co-Ordinator accepted the award and $300 prize money at the National Safety Council Congress and Convention in Chicago (October 15th). The Safety Congress is the world's largest single safety event, attracting 12,000 safety professionals and volunteers from the U.S. and abroad. Community organizations from all over the United States interested in child passenger safety entered projects for the contest.

PECABU (**P**rotect **E**very **C**hild **A**nd **B**uckle **U**p) has loaned out almost 900 infant seats to Anchorage parents since the Auxiliary began the program in April. The program operates out of Providence Hospital and Humana Hospital Alaska, Monday, Wednesday and Friday from 10:30 until 1:30. A deposit of $15 is required with a $10 refund when the seat is returned. The seat is loaned for 9 months and is open to any Anchorage parent. Over 40 Medical Society Auxiliary members and Hospital volunteers donate their time to PECABU.

The community response to PECABU has been overwhelming and for the second time since it began in April, the program is almost out of seats. The Medical Auxiliary has raised over $15,000 to buy the infant seats and all shipping costs have been donated by Alaska Airlines. For those interested contributions are tax deductible and a $25 donation adds 1 infant seat to the program. They can be sent to: Anchorage, Medical Society Auxiliary/PECABU, 2047 Duke Drive, Anchorage, Alaska 99508. The Auxiliary plans to use its prize money from the contest to purchase additional seats for the program.

For further information contact:

Lorrie Horning
276-8776

Kathy Wolgemuth
Alaska State Troopers
269-5511

Medical Auxiliary Scholarships Awarded

The Alaska State Medical Association Auxiliary awarded two scholarships of $750 to Alaska high school students who intend to pursue health-related careers.

Tou Theng Yang, a 1983 graduate of Metlakatla High School, and Chiquita Cothron, a 1983 graduate of Dimond High School were the recipients of the annually awarded scholarship.

Yang has been an active participant in sports, student government and community activities.

Yang said memories of war, disease and starvation during his early childhood in Southeast Asia have motivated him to choose a career in medicine. He hopes to assist Laotian-American people and will attend either the Creighton University or the University of Iowa.

Cothron, the daughter of Mr. and Mrs. Joe M. Cothron of Anchorage, has demonstrated noted ability in scholarship and leadership. She actively participated in many school organizations, student government. Cothron plans to attend Stanford University and study medicine.

Deciding this year's scholarship winners was more difficult then ever. We received a total of 71 completed applications as compared to 31 received last year.

President's Corner

One year ago, then President Marge Muzzall listed 5 goals that she hoped to meet during her year as President. They were:

Introduction of a statewide project on car seat safety.

An annual meeting which will offer something for each member of the family.

Feasibility study of a history of physicians in Alaska.

More correspondence with our members at large.

Update scrapbook.

I am proud and pleased to report that Marge fulfilled all of these goals and at the same time did an excellent job. Each of these goals represents an ongoing project that I will continue to support.

In addition, with the final copies of the cookbook quickly being sold, I am working on a replacement project that will enable us to continue our Scholarship Fund.

The second challenge that I face is the tremendous task of involving all the members in this great state in the many projects that exist. We are limited by the great distances of our state and scattered membership, but I believe that within each of us there is a cause that we are partial to supporting. Whether the issue is child abuse, or drunk driving, the auxiliary can — and has —made a difference. The auxiliary has 80,000 members and much information available to its members.

I feel that it is my responsibility as state president to make you aware of these opportunities and aid you in carrying out any project you would like to undertake. If you desire information concerning any health-related issue, please let me know and I will be happy to forward any information available on the subject.

Jane Erkmann - President
6851 Crooked Tree Drive
SRA Box 32A
Anchorage, AK 99507

MEMBERSHIP

Please join us! Get a head start on your membership and send your dues in now!

Alaska State Medical Auxiliary Member at Large
1983-84 Dues - $20.00

Name: _____

Address: _____

_____ Zip _____

Phone _____

Mail to: Linda Sutherland
2231 Douglas Drive
Anchorage, AK 99504

Available for locum tenens during the spring, summer or fall of '84. Would prefer remote or very remote areas. Specialty - General Practice; Subspecialty - General Surgery. Licensed to practice in Alaska. Qualifications available upon request:

William Rawlings, Sr., M.D.
522 Washington Avenue
Sandersville, Georgia 31082

Nurse can possibly accompany if necessary.

POST GRADUATE COURSES

*December 9, 10	**Computers and Microprocessors for the Physician's Office.** The program is arranged in order that appeal to physicians with differing levels of competence in computers will be interested. There will be modules on basic computing, software programs for the physician's office, and information on future developments.
*January	**Immunology for Clinicians.** This will include a review of cell mediated immunity, humoral mechanisms, and disorders of leucocyte function.
*February	**Sleep Disorders**
February 12-17	**Sun Valley Primary Care Conference at "The Lodge" Sun Valley, Idaho.** Category I - 20 hours Tuition fee: $275 before Nov. 1 $300 thereafter Co-sponsored by Northwest Hospital, Seattle, WA. Accommodations are limited. Please register as early as possible. Discount charter flight direct to Sun Valley is also available on a limited basis. For more information contact: Linda Levy 1956 - 4th Avenue W. Seattle, Washington 98119 (206) 282-9876
*March	**ACLS and BCLS at Banff Springs, B.C.** A first attempt at putting on a conference at a recreational site. Registration will be limited.
March 23-26	**1984 Annual Meeting, Hyatt Regency, Louisville, Kentucky.** Sponsored by the University Association for Emergency Medicine. Fee range: $0 - $200 Please contact: Judith E. Tintinalli, M.D., Program Chairman, 1984 Annual Meeting, UA/EM, 900 West Ottawa, Lansing, Michigan 48915, (517) 485-5484

* For further information contact Sherrie M. Siverson, Center for Educational Development, Providence Hospital, 3200 Providence Drive, Pouch 6604, Anchorage, Alaska 99502, (907) 564-9611.

PHYSICIAN SELF-ASSESSMENT

Choose the appropriate answers, one or all may be correct

1. Fatalities in patients with DKA (diabetic ketoacidosis) are likely to be associated with:
   A. Significant elevation of serum glucose at time of admission.
   B. Significant elevation of serum osmolality at time of admission.
   C. Significant elevation of BUN at time of admission.
   D. Advanced age.
   E. All of the above.

2. A patient who presents with fever, small very tender thyroid with radiation of pain to one or both ears and some hypermetabolic symptoms with a high sedimentation rate and a 24 hour thyroid uptake of radioiodine of 1% most likely has the diagnosis of:
   A. Graves disease.
   B. Lymphocytic thyroiditis with spontaneously resolving hyperthyroidism (LT/SRH).
   C. Granulomatous (Subacute)/Thyroiditis.
   D. Factitous hyperthyroidism.
   E. Ectopic TSH secretion

3. Concerning the polycystic ovary syndrome (PCO) which of the following is correct:
   A. Serum free testosterone is usually elevated.
   B. Androstenedione (A) and luteinizing hormone (LH) levels are usually higher than normal.
   C. DHEA-S levels are frequently elevated.
   D. Serum concentrations of estradiol (E_2) and estrone (E_1) are usually reversed (E_1 greater than E_2).
   E. All of the above.

4. The diagnosis of Cushing's disease (pituitary dependent Cushing's) is best made by demonstrating:
   A. Very high ACTH levels.
   B. Very low ACTH levels.
   C. High a.m. and p.m. serum cortisol levels.
   D. Elevated cortisol production rate in the appropriate clinical setting.
   E. Sellar CT scanning to look for pituitary tumor.

5. A 65 year old female presents with dry skin, facial edema, cold intolerance and symptoms and signs of congestive heart failure. She is admitted to the hospital, treated for heart failure and myxedema with intravenous thyroxine, Lasix, theoplylline and lanoxin. She suddenly develops problems with arrhythmias and frequent PVC's. The most likely possibilities include:
   A. Electrolyte imbalance.
   B. Hypoxia.
   C. Drug overdose.
   D. Too rapid re-warming.
   E. All of the above.

6. A 17 year old male presents to you for a college physical examination and is found to have a serum calcium value of 11.2mg and is entirely assymptomatic. A study of his family members revealed an older brother with a serum calcium of 11.3 mg. You then find out your patient's father had a recent unsuccessful neck exploration for suspected primary hyperparathyroidism. The most likely diagnosis in your patient is:
   A. Hypercalcemia on the basis of familial metabolic defect in Vitamin D metabolism.
   B. Primary hyperparathyroidism.
   C. Familial hypocalciuric hypercalcemia (F.H.H.).
   D. Occult carcinoma in all studied family members.
   E. M.E.N.-II (multiple endocrine neoplasia Type II).

7. An otherwise healthy 32 year old female presents with amenorrhea for 1 year following the use of birth control pills, mild headaches, and a mild increase in facial hair. She denies galactorrhea. Initial serum prolactin value is 455 ng/ml. She denies using any medication. The most likely diagnosis is:
   A. Post-pill amenorrhea.
   B. Prolactin secreting pituitary tumor.
   C. PCO (polycystic ovarian disease).
   D. Hypothalamic amenorrhea.
   E. None of the above.

8. Major clinical features of hyperprolactinemia in men are:
   A. Gynecomastia.
   B. Galactorrhea.
   C. Impotence.
   D. Bilaterally small firm testes.
   E. Loss of libido (most noticeable by sexual partner).

9. Because symptoms of hypoglycemia are nonspecific, it is necessary to demonstrate a low plasma glucose concentration (less than 45mg) under which of the following conditions:
   A. During the occurrence of symptoms.
   B. During an Oral Glucose Tolerance Test.
   C. Fasting.
   D. None of the above.

E. All of the above.

10. Drugs which have been shown to alter thyroid function tests include:
    A. Dopamine.
    B. Glucocorticoids.
    C. Iodinated contrast agents.
    D. Propranolol.
    E. Dilantin.

ELECTROCARDIOGRAM OF THE QUARTER

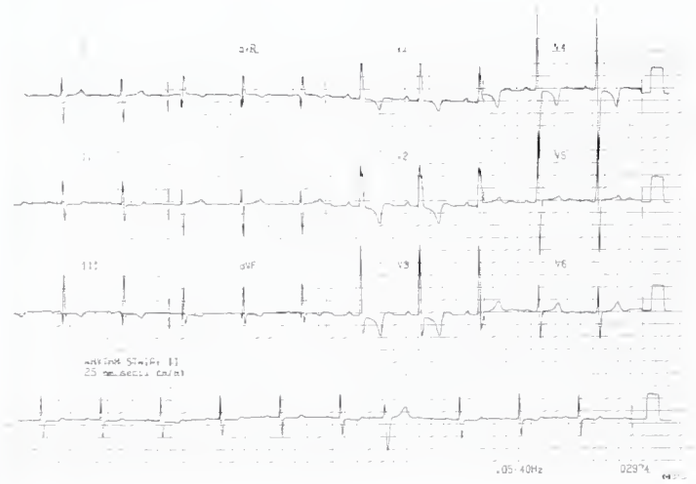
Case History

The electrocardiogram reproduced here was obtained from a 32 year old man. Mr. D. stated that he was born with a congenital heart defect that was repaired when he was a youngster. Subsequently he was able to participate in any physical activity and kept up with his peers as an adult. He had cardiac catheterization three years ago when he was feeling well. During the last year he noted some decrease in energy, stamina and feeling of well-being.

On examination he appeared normal and healthy except for slight duskiness of his mucous membranes and nail beds. There was a systolic ejection murmur along the left sternal border, and an ejection click in the same, area. The examiner could feel as well as hear the pulmonic closure. Laboratory examination revealed a hemoglobin concentration of 16 gm/dl, arterial blood gas of 60 mm Hg on room air and an enlarged heart with prominence of the pulmonary artery segment on chest radiograph.

Questions:

1. What is your electrocardiographic diagnosis?
2. What kind of congenital heart disease did the patient have?
3. What is his present problem?



X-RAY OF THE QUARTER

A 43 year old woman with a one year history of left upper quadrant pain had increasing left pleuritic chest pain, mild shortness of breath and nausea. She had had a 30 lb. weight loss over the last year and a past history of heavy alcohol use. A UGI series showed a normal distal esophagus and thickened fundal folds.

Figure 1 is an AP chest film. Figure 2 is a CT scan through the lower chest with the diaphragm being visible on the right. Figure 3 is at the level of the liver and spleen. An NG tube is in the GE junction. What is the abnormality demonstrated?

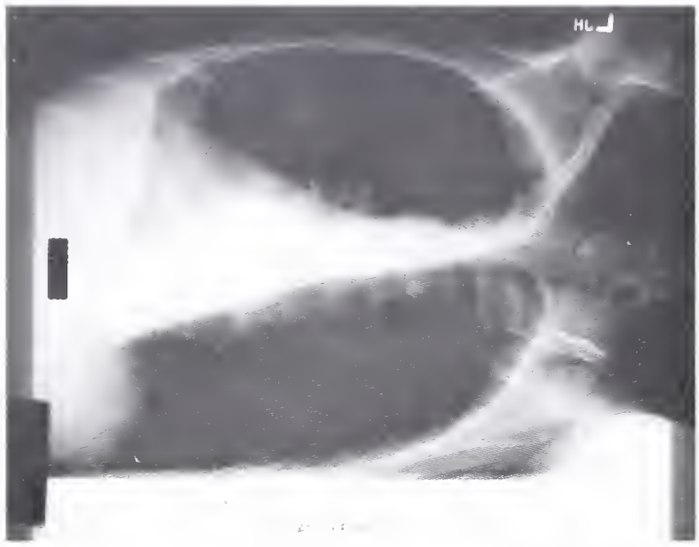


Figure 1.

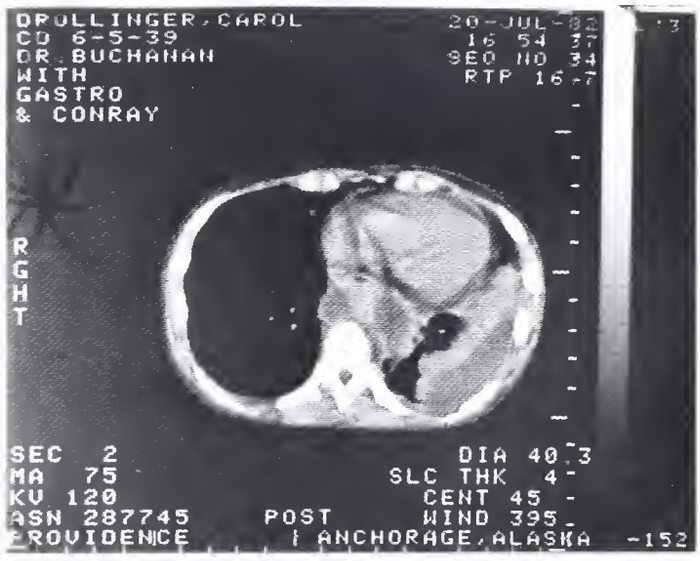


Figure 2.

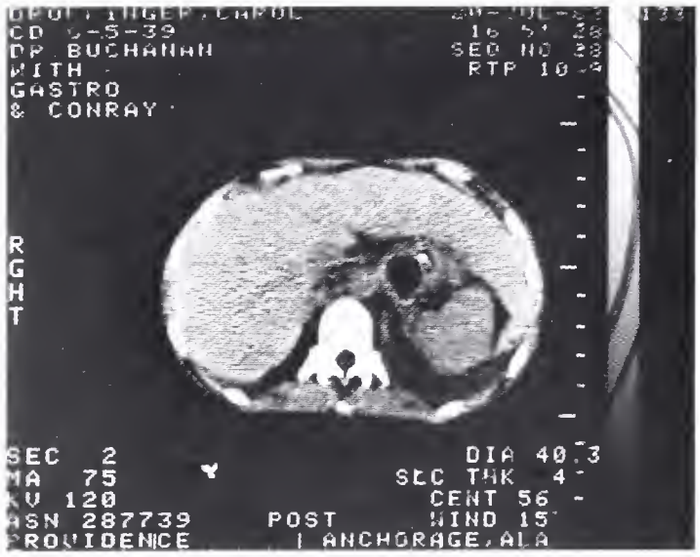


Figure 3.

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ANSWERS TO PHYSICIAN SELF-ASSESSMENT

1. *E.* All answers are correct. Also, serious underlying disorders such as pancreatitis, myocardial infarction, infection and neoplasms are associated with the majority of deaths from DKA.

   References

   a. Soler NG, Fitzgerald MG, Bennett MA, Malius JM. Intensive care in the managment of diabetic ketoacidosis. Lancet 1973; 1:951.

   b. Skillman TG, Rodman W, Knolules HC. Mortality of patients with diabetic ketoacidosis in a large city hospital. Diabetes 1958; 7:109.

   c. Deigelman PM, Warner NE. Thirty two fatal cases of severe diabetic ketoacidosis, including mucomycosis. Diabetes 1973; 22:847.

2. *C.* Granulomatous (subacute) thyroiditis is the most likely diagnosis in this clinical setting. Treatment is supportive with antiinflammatories (ASA), Prednisone and control of hypothyroid symptoms with beta-blockers. A hypothyroid phase is frequently seen during the eventual expected recovery.

3. *E.* All of the above. In the vast majority of patients causation factors of PCO remain unknown. The production rate of testosterone in PCO is higher than normal. Elevated DHEA-S levels reflect adrenal androgen production in about half of patients with PCO. The LH elevation probably represents a functional derangement consequent to inappropriate estrogen feedback. The elevated estrone (E_1) levels are probably from peripheral conversion of androstenedione.

4. *D.* A thorough history and physical examination to establish the appropriate clinical setting as well as establishing elevated base line cortisol production (24 hour urine collection for free cortisol) and suppressability with higher dose dexamethasone is valuable in the diagnosis of Cushing's disease.

5. *E.* All of the above. Regulation of fluids and electrolytes avoidance of hypoxia by appropriate measures (intubation, or even tracheostomy when necessary), avoidance of rapid re-warming, and the appropriate use of medications are all vital to the management of patients with severe myxedema. Drugs, even in relatively small doses are metabolized more slowly than normal and levels should be monitored appropriately. Also, occult infection must be looked for in all patients with myxedema.

6. *C.* Familial hypocalciuric hypercalcemia. Inherited in an autosomal dominant manner, FHH should be suspected in younger persons with mild hypercalcemia. The incidence is not known, and no single biochemical test is definitive. Levels of PTH tend to be high and urinary calcium excretion is low. Most patients need not be treated as the outcome of parpthyroid surgery has been generally unsatisfactory. Severe neonatal hyperparathyroidism has been reported and is the clearest indication for total parathyroidectomy.

   Reference

   Marx SJ, et al. Familial hypocalciuric hypercalcemia: relation to primary parathyroid hyperplasia. N Eng J Med 1982; 307:416.

7. *B.* Prolactin secreting pituitary tumor. The incidence of galactorrhea in patients with prolactin secreting pituitary tumor varies from 50-90% and reflects the changing spectrum of hyperprolactinemia caused by earlier recognition of the disorder. Prolactin levels greater than 200 ng/ml are almost always indicative of a pituitary tumor. Some women with hyperprolactinemia have also noted mild hirsutism which is accompanied by an increase in DHEA-S production by the adrenals.

8. *C,E.* Impotence and loss of libido. Galactorrhea is not a feature of hyperprolactinemia in men. In contrast to women, prolactin secreting tumors in men are usually quite large by the time medical attention is sought, and frequently the patient can be hypopituitary with little functioning pituitary gland remaining at the time of diagnosis.

   Reference

   Carter JN, et al. Prolactin secreting tumors and hypogonadism in 22 men. N Eng J Med 1978; 299-847.

9. *A.* During the occurrence of symptoms. Whipples Triad must be demonstrated in any patient before hypoglycemia can be considered for the basis of symptoms. Whipple's triad includes a
   1) low plasma glucose concentration at the
   2) time of symptoms
   3) and relief of symptoms by the correction of the hypoglycemia.

   An oral Glucose Tolerance Test should not be used in attempting to diagnose hypoglycemia, as there is a high incidence of false positivity.

   Reference

   Service JF. Hypoglycernic Disorders. Pathogenesis, Diagnosis and Treatment. G.K.Hall Medical Publishers, Boston, 1983, p.73-95.

10. *A,B,C,D,E.* All of the listed drugs have been shown to alter thyroid function tests. Dopamine has been reported to lower both basal TSH secretion and blunt the TSH secretion and blunt the TSH response to thyrotropin releasing hormone. Glucocorticoids, especially in pharmacologic doses may profoundly influence thyroid function at several levels, including TSH secretion and T_4 to T_3 peripheral conversion. Iodinated agents may

affect deiodination of T_4 to T_3 and may even mildly elevate TSH levels. Propranolol has been shown to have an effect on T_3 neogenesis, lowering the serum T_3 value. Other beta-blockers do not seen to share this property. Dilantin will decrease serum T_4 and occasionally decreases serum T_3, but TSH and TSH response to thyrotropin releasing hormone are generally not affected.

Reference

Wartofshy L, Burman KD. Alterations in thyroid function in patients with systemic illness: the "euthyroid sick syndrome". Endo Rev 1982; 3:164.

ANSWERS TO ELECTROCARDIOGRAM OF THE QUARTER

1. This electrocardiogram demonstrates all of the frequently used criteria for the presence of right ventricular hypertrophy. They are:
   a. Right axis deviation of +110 degrees or more
   b. R/S ratio in V_1 greater than 1.0
   c. R wave in V_1 greater than 1.0
   d. S wave in V_1 greater than 7mm
   e. qR or pure R wave in V_1
   f. R wave in V_1 + S wave in V_5 or V_6 greater than 10.5mm
   g. R/S ratio in V_5 or V_6 less than 1.0
   h. ST depression and T inversion in right precordial leads
   i. features above associated with QRS duration less than 0.12 seconds.

   Ordinarily right ventricular hypertrophy is considered to be present if one or more of the criteria above are met.
2. This man had a large left to right shunt from a ventricular septal defect and anomalous pulmonary venous return repaired in his youth.
3. The loud pulmonic closure sound (palpable as well as audible) along with right ventricular hypertrophy and systemic arterial desaturation indicate that moderately severe pulmonary artery hypertension is present. This problem can occur when pulmonary hypertension secondary to large left to right shunts becomes irreversible prior to surgical correction. Various pharmacologic treatments for this condition have been tried. Some, including vasodilators such as hydralazine, prazosin and slow channel calcium blockers have been helpful in reducing the high pulmonary vascular resistance. Often, however, the pulmonary vascular bed is unresponsive to any therapy and the hypertension persists producing cor pulmonale.

ANSWER TO X-RAY OF THE QUARTER

The chest film shows a mass behind the heart which obliterates part of the left paraspinal soft tissue shadow. A left pleural effusion is present. Figure 2 shows a low density (fluid filled) mass on either side of the descending aorta, similar in density to the pleural effusion. Figure 3 shows a single fluid filled mass behind the stomach in the lesser sac.

From the chest film alone, a carcinoma of the esophagus or lung should be considered. The CT finding of a low density mass similar to the pleural effusion, suggests that the mediastinal mass is fluid. Considerations include a pancreatic pseudocyst extending into the chest, esophageal tear with abscess and pleural effusion, esophageal duplication, bronchogenic cyst, liquified hematoma, paraspinal abscess and neurenteric cyst.

CT slices were extended into the abdomen. The two low density mediastinal masses joined at the diaphragm and continued inferiorly into the lesser sac and the tail of the pancreas. The findings represent a pancreatic pseudocyst with extension into the mediastium. ERCP showed contrast leaking into a fistulous tract from the mid-pancreatic duct.

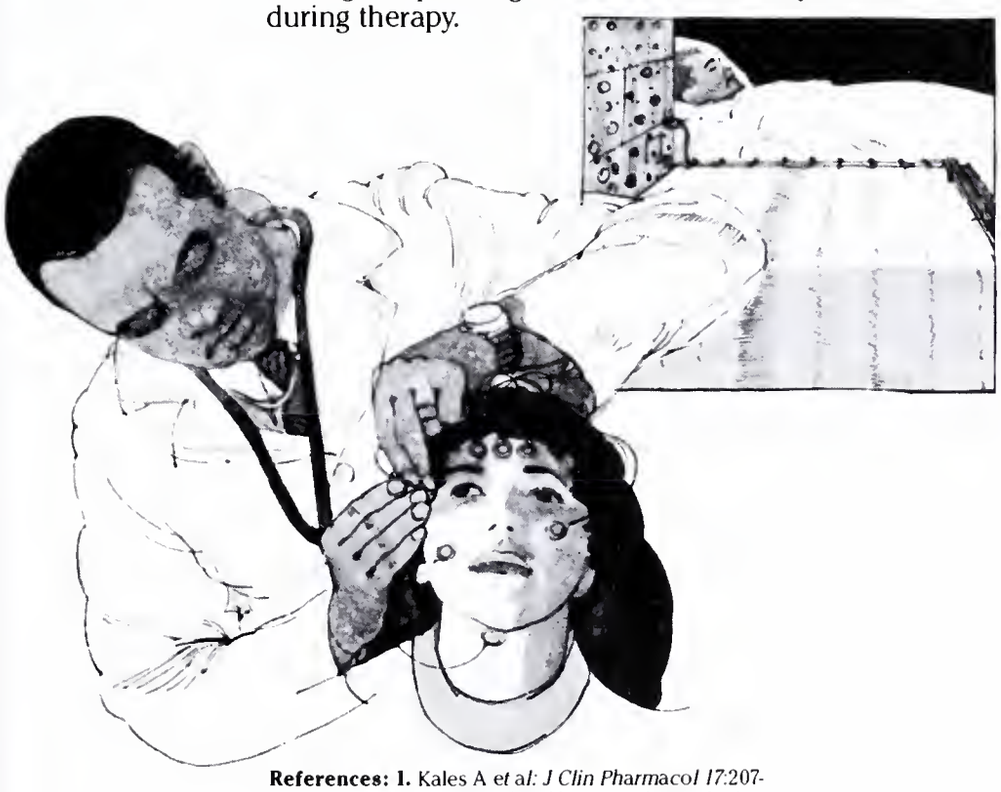
Pancreatitis frequently results in damage to the acinar tissure and ducts with pancreatic secretions migrating through the thin layer a connective tissure around the gland (the pancreas does not have a well developed capsule like the liver, kidneys or spleen). The fluid most commonly enters the lesser sac or the anterior pararenal space or may remain along the surface of the gland beneath the thin connective tissue. Fluid collections may progress to unusual locations including the porta hepatis, mediastinum and pelvic retroperitoneum. Acutely, these fluid collections are not true pseudocysts and they appear to spare autodigestion of the gland with expulsion of the pancreatic secretions. They frequently resolve without development of an actual pseudocyst.

The weight of objective evidence supports the clinical efficacy of Dalmane® Ⓝ

flurazepam HCl/Roche

15-mg/30-mg capsules

- Studied extensively in the sleep laboratory—the most valid environment for measuring hypnotic efficacy.[1-12]
- Studied in over 200 clinical trials involving over 10,000 patients.[13]
- During long-term therapy, which is seldom required, periodic blood, kidney and liver function tests should be performed.
- Contraindicated in patients who are pregnant or hypersensitive to flurazepam.
- Caution patients about drinking alcohol, driving or operating hazardous machinery during therapy.



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Dalmane® Ⓝ
(flurazepam HCl/Roche)

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening; in patients with recurring insomnia or poor sleeping habits; in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

Contraindications: Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patient to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Though physical and psychological dependence have not been reported on recommended doses, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

Precautions: In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

Adverse Reactions: Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, *e.g.*, excitement, stimulation and hyperactivity.

Dosage: Individualize for maximum beneficial effect. *Adults:* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg recommended initially until response is determined.

Supplied: Capsules containing 15 mg or 30 mg flurazepam HCl.

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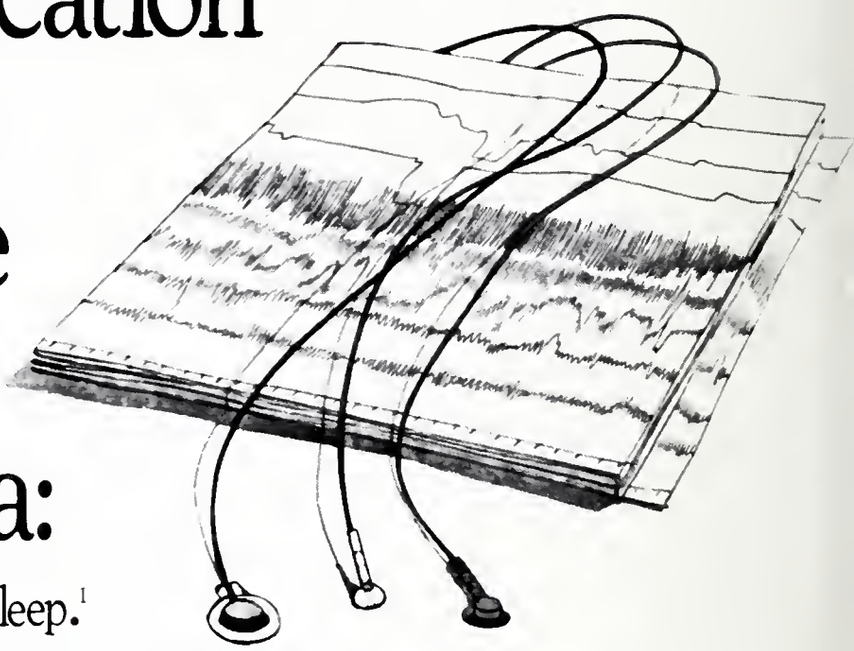

- Rapid onset of sleep.[1]
- More total sleep time on the first 3 nights of therapy.[1]
- More total sleep time on nights 12 to 14 of therapy.[1]
- Continued efficacy for at least 28 nights.[2]
- Seldom produces morning hangover.[3]
- Avoids rebound insomnia when therapy is discontinued.[1,4,5]

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